GROUP 3 MINI-SYSTEMS

FLOW MONITORING EVALUATION REPORT

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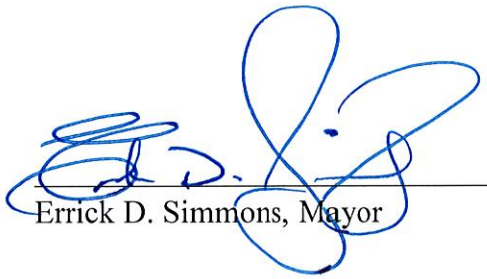
CERTIFICATION

Group 3 Mini-Systems Flow Monitoring Evaluation Report
Partial Consent Decree
City of Greenville

I certify under penalty of law that this document and all its attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



Errick D. Simmons, Mayor

1-2-20

Date

File Name: Group 3 Mini-Systems Flow Monitoring Evaluation Report

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1.0 Executive Summary

The Group 3 Mini-Systems Evaluation Report (GROUP 3 REPORT) is a key component and deliverable of the City of Greenville, MS (CITY) Partial Consent Decree (PCD). It consists of flow analyses of the CITY's assumed best sewer mini-systems (Group 3) and a prioritization of more detailed, if warranted by findings, SSES work.

Prior to the execution of the PCD, the United States Environmental Protection Agency (EPA) and the CITY prioritized this work by first ranking the CITY's sewer's mini-systems into three (3) categories: Group 1 (poor condition), Group 2 (fair condition), and Group 3 (good condition).

The Group 3 systems are referenced on Figure 3 and consist of:

- 31 Mini-Systems
- 66.4 Miles of Gravity Sewer (32.3% of CITY total)
- 1,141 Manholes (31.9% of CITY total)
- 40 Pump Stations

The Group 3 flow analysis report findings are organized by mini-system and referenced in the body of the GROUP 3 REPORT.

The Group 3 Mini-System O.S.S.E.S. Prioritization report and the proposed schedule for SSES evaluation work is shown in Table 1.

2.0 Introduction

2.1 Overview

On April 4, 2016, a PCD (U.S. District Court Civil Action No. 4:16-cv-00018), issued by the United States of America on behalf of the EPA to the CITY, was executed. The PCD cited the CITY for violations to both their National Pollutant Discharge Elimination System (NPDES) permit and the Clean Water Act (CWA) over a period of time from 2007 to 2012. The PCD outlined assessment and remedial actions to be implemented by the CITY over a six (6) year period to bring the CITY's Group 1 & 2 sanitary sewer systems into compliance (See Figure 1 – Gantt Chart).

This GROUP 3 REPORT is the final assessment required under the PCD.

2.2 Purpose

The purpose of the GROUP 3 REPORT is to both document the Flow Analysis findings, and develop a proposed evaluation plan and schedule for the Group 3 sewer mini-systems.

3.0 Background

3.1 SSER Work Plan

Under Section VII Paragraph 20 of the PCD, EPA requested the development of a SSER Work Plan. The CITY retained W.L. Burle Engineers, P.A. (BURLE) of Greenville, MS to develop the work plan. BURLE prepared the document and submitted it to the EPA on January 22, 2016. After several iterations, EPA formally approved the February 27, 2018 version on March 6, 2018.

In summary, the SSER Work Plan outlined proposed sewer assessment activities consisting of sewer cleaning, closed circuit television (CCTV) inspection, manhole inspection, smoke testing, pump station inspection and force main inspection activities for the Group 1 and Group 2 mini-systems. Flow monitoring activities were to be performed for the Group 3 systems.

4.0 Flow Study

4.1 Methodology

Flow monitors were installed as part of an Early Action Project (Contract 5) that included installation of a Supervisory Control and Data Acquisition (SCADA) system on 78 of the 104 public lift stations in the Wastewater Collection and Treatment System(WCTS). Additionally, rainfall tipping buckets were installed at 6 lift stations geographically dispersed throughout the city. The daily flow data was downloaded and assembled into spreadsheets for a minimal period of twelve months starting August 1, 2018 and ending August 31, 2019, with rainfall data from the most relevant tipping bucket for each lift station, and river stages expressed in elevation above Mean Sea Level (MSL). The total miles of pipe of each diameter present within each mini-system were tabulated, including sewer laterals. Graphs were developed from the data for each Mini-system and Lift Station combination.

The data was then analyzed to determine ideal study periods for determining baseflows, periods of maximum inflow, and periods of maximum infiltration. During the data collection portion of this study there were several lift stations that were either on bypass, or had warranty work underway on the SCADA system or Flow Meters. As a result, the study period was extended to ensure that there would be sufficient data. The study period data was organized into individual spreadsheets to calculate gallons per day per inch of diameter per mile of pipe (gpd/idm)*

4.2 Results

Each Mini-system is presented on the following pages with statistics and results. The data is further presented in a table with priorities shown for further SSES work.

SECTION 4.1 MS3-E/PS6 SUMMARY

The drainage basin for Mini-system 3-E / Pump Station 6 has a total area of 30 acres. There are 61 active sewer accounts in the mini-system. The flows utilized for the study were recorded from ABB Full-bore mag-meters by the City of Greenville's Supervisory Control and Data Acquisition (SCADA) system. The period of study started on April 1, 2018 and ended on November 20, 2019. Daily flows were arranged in a spreadsheet then compared against daily rainfall amounts, and daily Mississippi River Stages expressed as an Elevation above Mean Sea Level (MSL). From those comparisons we developed the date ranges to study for Base Sewer Flow, Maximum Average Inflow, and Maximum Average Infiltration.

The Baseline Flow for this basin was determined to be **11,357 gallons per day(GPD)** during a seven day period of low rainfall (0.17"), and prolonged low river stage (108.26' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Inflow for this basin is **81,857 GPD** during a seven day period of rainfall (period total 2.15"), and prolonged low river stage (108.44' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Infiltration for this basin is **74,143 GPD** during a seven day period of low rainfall (period total 0.97"), and prolonged high river stage (131.76' MSL). Average ground elevation in Greenville is 123.5 MSL.

We used the alternative method of gallons per day per inch of diameter per mile of pipe (gpd/idm)*, and looked for Inflow and Infiltration values in excess of 1,500 gallons per day per inch of diameter per mile of pipe(gpd/idm). Utilizing this method to evaluate the inflow resulted in a value of **7,970 gpd/idm**, which exceeds the recommended maximum value of 1,500 gpd/idm. Utilizing this method to evaluate the infiltration resulted in a value of **7,219 gpd/idm**, which exceeds the maximum recommended value of 1,500 gpd/idm.

We also reviewed the occurrences of Sanitary Sewer Overflows (SSOs) during the study period. There were no SSO's in the gravity portion of this basin during the study period.

Prioritization of this basin for Ongoing Sanitary Sewer Evaluation Survey schedules is addressed in the Mini-system Matrix in Table 1.

*Per alternate EPA methods, "Metcalf & Eddy's text 'Wastewater Engineering: Collection and Pumping of Wastewater', suggests that infiltration rates for whole collection systems (including service connections) that are lower than 1500 gpd/idm are not usually excessive.

SECTION 4.2 MS4-A/4-B/PS7 SUMMARY

The drainage basin for Mini-systems 4-A/B / Pump Station 51 has a total area of 245 acres. There are 300 active sewer accounts in the mini-system. The flows utilized for the study were recorded from ABB Full-bore mag-meters by the City of Greenville's Supervisory Control and Data Acquisition (SCADA) system. The period of study started on April 1, 2018 and ended on November 20, 2019. Daily flows were arranged in a spreadsheet then compared against daily rainfall amounts, and daily Mississippi River Stages expressed as an Elevation above Mean Sea Level (MSL). From those comparisons we developed the date ranges to study for Base Sewer Flow, Maximum Average Inflow, and Maximum Average Infiltration.

The Baseline Flow for this basin was determined to be **274,571 gallons per day(GPD)** during a seven day period of low rainfall (0.19"), and prolonged low river stage (107.10' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Inflow for this basin is **400,429 GPD** during a seven day period of rainfall (period total 5.52"), and prolonged low river stage (107.56' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Infiltration for this basin is **778,714 GPD** during a seven day period of low rainfall (period total 0.06"), and prolonged high river stage (131.18' MSL). Average ground elevation in Greenville is 123.5 MSL.

We used the alternative method of gallons per day per inch of diameter per mile of pipe (gpd/idm)*, and looked for values in excess of 1,500 gallons per day per inch of diameter per mile of pipe(gpd/idm). Utilizing this method to evaluate the inflow resulted in a value of **3,847 gpd/idm**, which exceeds the recommended maximum value of 1,500 gpd/idm. Utilizing this method to evaluate the infiltration resulted in a value of **7,482 gpd/idm**, which exceeds the maximum recommended value of 1,500 gpd/idm.

We also reviewed the occurrences of Sanitary Sewer Overflows (SSOs) during the study period. There were 3 SSO's in the gravity portion of this basin during the study period.

Prioritization of this basin for Ongoing Sanitary Sewer Evaluation Survey schedules is addressed in the Mini-system Matrix in Table 1.

*Per alternate EPA methods, "Metcalf & Eddy's text 'Wastewater Engineering: Collection and Pumping of Wastewater', suggests that infiltration rates for whole collection systems (including service connections) that are lower than 1500 gpd/idm are not usually excessive.

SECTION 4.3 MS6PS13 SUMMARY

The drainage basin for Mini-system 6 / Pump Station 13 has a total area of 129 acres. There are 273 active sewer accounts in the gravity portion of the mini-system. The flows utilized for the study were recorded from ABB Full-bore mag-meters by the City of Greenville's Supervisory Control and Data Acquisition (SCADA) system. The period of study started on January 1, 2018 and ended on November 20, 2019. Daily flows were then compared against daily rainfall amounts, and daily Mississippi River Stages expressed as an Elevation above Mean Sea Level (MSL). From those comparisons we developed the date ranges to study for Base Sewer Flow, Maximum Average Inflow, and Maximum Average Infiltration.

The Baseline Flow for this basin was determined to be **47,143 gallons per day(GPD)** during a seven day period of low rainfall (0.04"), and prolonged low river stage (100.94' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Inflow for this basin is **497,857 GPD** during a seven day period of rainfall (period total 3.76"), and prolonged low river stage (100.26' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Infiltration for this basin is **100,571 GPD** during a seven day period of low rainfall (period total 0.08"), and prolonged high river stage (128.8' MSL). Average ground elevation in Greenville is 123.5 MSL.

We used the alternative method of gallons per day per inch of diameter per mile of pipe (gpd/idm)*, and looked for values in excess of 1,500 gallons per day per inch of diameter per mile of pipe(gpd/idm). Utilizing this method to evaluate the inflow resulted in a value of **9,349 gpd/idm**, which exceeds the recommended maximum rate of 1,500 gpd/idm. Utilizing this method to evaluate the infiltration resulted in a value of **1,889 gpd/idm**, which exceeds the maximum recommended rated of 1,500 gpd/idm.

We also reviewed the occurrences of Sanitary Sewer Overflows (SSOs) during the study period. There were no SSO's in the gravity portion of this basin during the study period.

Prioritization of this basin for Ongoing Sanitary Sewer Evaluation Survey schedules is addressed in the Mini-system Matrix in Table 1.

*Per alternate EPA methods, "Metcalf & Eddy's text 'Wastewater Engineering: Collection and Pumping of Wastewater', suggests that infiltration rates for whole collection systems (including service connections) that are lower than 1500 gpd/idm are not usually excessive.

SECTION 4.4 MS6PS15 SUMMARY

The drainage basin for Mini-system 6 / Pump Station 15 has a total area of 44 acres. There are 7 active sewer accounts in the mini-system. The flows utilized for the study were recorded from ABB Full-bore mag-meters by the City of Greenville's Supervisory Control and Data Acquisition (SCADA) system. The period of study started on January 1, 2018 and ended on November 20, 2019. Daily flows were found to be incomplete to the point that no analysis could be performed.

SECTION 4.5 MS8PS17 SUMMARY

The drainage basin for Mini-system 8 / Pump Station 17 has a total area of 147 acres. The basin is receives flow from pump stations 5, 7, 10, 13, 16, and 55. There are 177 active sewer accounts in the gravity portion of the mini-system. The flows utilized for the study were recorded from ABB Full-bore mag-meters by the City of Greenville's Supervisory Control and Data Acquisition (SCADA) system. The period of study started on April 17, 2018 and ended on November 20, 2019. Daily flows for Pump Stations 5, 7, 10, 13, 16, 17, and 55 were arranged in an Excel Spreadsheet. Daily flows from Pump Stations 5, 7, 10, 13, 16, and 55 (influent) were deducted from the daily flows from Pump Station 17 (effluent) to determine the net direct gravity flow from within the Pump Station 17 sewer basin. Daily flows were then compared against daily rainfall amounts, and daily Mississippi River Stages expressed as an Elevation above Mean Sea Level (MSL). From those comparisons we developed the date ranges to study for Base Sewer Flow, Maximum Average Inflow, and Maximum Average Infiltration.

The Baseline Flow for this basin was determined to be **451,786 gallons per day(GPD)** during a seven day period of low rainfall (0.62"), and prolonged low river stage (96.65' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Inflow for this basin is **144,001 GPD** during a seven day period of intense rainfall (period total 7.99"), and prolonged low river stage (97.43' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Infiltration for this basin is **331, 214 GPD** during a seven day period of low rainfall (period total 0.04"), and prolonged high river stage (131.29' MSL). Average ground elevation in Greenville is 123.5 MSL.

We used the alternative method of gallons per day per inch of diameter per mile of pipe (gpd/idm)*, and looked for values in excess of 1,500 gallons per day per inch of diameter per mile of pipe(gpd/idm). Utilizing this method to evaluate the inflow resulted in a value of **4, 913.381 gpd/idm**, which exceeds the recommended maximum rate of 1,500 gpd/idm. Utilizing this method to evaluate the infiltration resulted in a value of **11,301.17 gpd/idm**, which exceeds the maximum recommended rated of 1,500 gpd/idm.

We also reviewed the occurrences of Sanitary Sewer Overflows (SSOs) during the study period. There was 1 SSO in the gravity portion of this basin during the study period

Prioritization of this basin for Ongoing Sanitary Sewer Evaluation Survey schedules is addressed in the Mini-system Matrix in Table 1.

*Per alternate EPA methods, "Metcalf & Eddy's text 'Wastewater Engineering: Collection and Pumping of Wastewater', suggests that infiltration rates for whole collection systems (including service connections) that are lower than 1500 gpd/idm are not usually excessive.

SECTION 4.6 MS9-B/PS40 SUMMARY

The drainage basin for Mini-system 9-B / Pump Station 40 has a total area of 430 acres. There are 738 active sewer accounts in the mini-system. The flows utilized for the study were recorded from ABB Full-bore mag-meters by the City of Greenville's Supervisory Control and Data Acquisition (SCADA) system. The period of study started on April 1, 2018 and ended on November 20, 2019. Daily flows were arranged in a spreadsheet then compared against daily rainfall amounts, and daily Mississippi River Stages expressed as an Elevation above Mean Sea Level (MSL). From those comparisons we developed the date ranges to study for Base Sewer Flow, Maximum Average Inflow, and Maximum Average Infiltration.

The Baseline Flow for this basin was determined to be **74,543 gallons per day(GPD)** during a seven day period of low rainfall (0.40"), and prolonged low river stage (95.55' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Inflow for this basin is **393,800 GPD** during a seven day period of rainfall (period total 5.35"), and prolonged low river stage (108' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Infiltration for this basin is **151,043 GPD** during a seven day period of low rainfall (period total 0.00"), and prolonged high river stage (128.68' MSL). Average ground elevation in Greenville is 123.5 MSL.

We used the alternative method of gallons per day per inch of diameter per mile of pipe (gpd/idm)*, and looked for values in excess of 1,500 gallons per day per inch of diameter per mile of pipe(gpd/idm). Utilizing this method to evaluate the inflow resulted in a value of **2,856.83 gpd/idm**, which exceeds the recommended maximum value of 1,500 gpd/idm. Utilizing this method to evaluate the infiltration resulted in a value of **1,095.74 gpd/idm**, which does not exceed the maximum recommended value of 1,500 gpd/idm.

We also reviewed the occurrences of Sanitary Sewer Overflows (SSOs) during the study period. There were 4 SSO's in the gravity portion of this basin during the study period.

Prioritization of this basin for Ongoing Sanitary Sewer Evaluation Survey schedules is addressed in the Mini-system Matrix in Table 1.

*Per alternate EPA methods, "Metcalf & Eddy's text 'Wastewater Engineering: Collection and Pumping of Wastewater', suggests that infiltration rates for whole collection systems (including service connections) that are lower than 1500 gpd/idm are not usually excessive.

SECTION 4.7 MS9-D/PS49 SUMMARY

The drainage basin for Mini-system 9-D / Pump Station 49 has a total area of 109 acres. There are 82 active sewer accounts in the mini-system. The flows utilized for the study were recorded from ABB Full-bore mag-meters by the City of Greenville's Supervisory Control and Data Acquisition (SCADA) system. The period of study started on April 1, 2018 and ended on November 20, 2019. Daily flows were arranged in a spreadsheet then compared against daily rainfall amounts, and daily Mississippi River Stages expressed as an Elevation above Mean Sea Level (MSL). From those comparisons we developed the date ranges to study for Base Sewer Flow, Maximum Average Inflow, and Maximum Average Infiltration.

The Baseline Flow for this basin was determined to be **158,571 gallons per day(GPD)** during a seven day period of low rainfall (0.15"), and prolonged low river stage (108.48' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Inflow for this basin is **41,929 GPD** during a seven day period of rainfall (period total 6.15"), and prolonged low river stage (97.76' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Infiltration for this basin is **18,071 GPD** during a seven day period of low rainfall (period total 0.06"), and prolonged high river stage (131.29' MSL). Average ground elevation in Greenville is 123.5 MSL.

We used the alternative method of gallons per day per inch of diameter per mile of pipe (gpd/idm)*, and looked for values in excess of 1,500 gallons per day per inch of diameter per mile of pipe(gpd/idm). Utilizing this method to evaluate the inflow resulted in a value of **2,220.45 gpd/idm**, which exceeds the recommended maximum value of 1,500 gpd/idm. Utilizing this method to evaluate the infiltration resulted in a value of **957.02 gpd/idm**, which does not exceed the maximum recommended value of 1,500 gpd/idm.

We also reviewed the occurrences of Sanitary Sewer Overflows (SSOs) during the study period. There were no SSO's in the gravity portion of this basin during the study period.

Prioritization of this basin for Ongoing Sanitary Sewer Evaluation Survey schedules is addressed in the Mini-system Matrix in Table 1.

*Per alternate EPA methods, "Metcalf & Eddy's text 'Wastewater Engineering: Collection and Pumping of Wastewater', suggests that infiltration rates for whole collection systems (including service connections) that are lower than 1500 gpd/idm are not usually excessive.

SECTION 4.8 MS11PS37 SUMMARY

The drainage basin for Mini-system 11 / Pump Station 37 has a total area of 83 acres. There are 250 active sewer accounts in the gravity portion of the mini-system. The flows utilized for the study were recorded from ABB Full-bore mag-meters by the City of Greenville's Supervisory Control and Data Acquisition (SCADA) system. The period of study started on April 1, 2018 and ended on November 20, 2019. Daily flows were then compared against daily rainfall amounts, and daily Mississippi River Stages expressed as an Elevation above Mean Sea Level (MSL). From those comparisons we developed the date ranges to study for Base Sewer Flow, Maximum Average Inflow, and Maximum Average Infiltration.

The Baseline Flow for this basin was determined to be **7,200 gallons per day(GPD)** during a seven day period of low rainfall (0.17"), and prolonged low river stage (99.29' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Inflow for this basin is **6,529 GPD** during a seven day period of rainfall (period total 6.15"), and prolonged low river stage (97.76' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Infiltration for this basin is **62,514 GPD** during a seven day period of low rainfall (period total 0.06"), and prolonged high river stage (131.07' MSL). Average ground elevation in Greenville is 123.5 MSL.

We used the alternative method of gallons per day per inch of diameter per mile of pipe (gpd/idm)*, and looked for values in excess of 1,500 gallons per day per inch of diameter per mile of pipe(gpd/idm). Utilizing this method to evaluate the inflow resulted in a value of **185.57 gpd/idm**, which exceeds the recommended maximum rate of 1,500 gpd/idm. Utilizing this method to evaluate the infiltration resulted in a value of **1,776.89 gpd/idm**, which exceeds the maximum recommended rated of 1,500 gpd/idm.

We also reviewed the occurrences of Sanitary Sewer Overflows (SSOs) during the study period. There were 3 SSO's in the gravity portion of this basin during the study period.

Prioritization of this basin for Ongoing Sanitary Sewer Evaluation Survey schedules is addressed in the Mini-system Matrix in Table 1.

*Per alternate EPA methods, "Metcalf & Eddy's text 'Wastewater Engineering: Collection and Pumping of Wastewater', suggests that infiltration rates for whole collection systems (including service connections) that are lower than 1500 gpd/idm are not usually excessive.

SECTION 4.9 MS12-B/PS35 SUMMARY

The drainage basin for Mini-system 12-B / Pump Station 35 has a total area of 50 acres. There are 130 active sewer accounts in the mini-system. The flows utilized for the study were recorded from ABB Full-bore mag-meters by the City of Greenville's Supervisory Control and Data Acquisition (SCADA) system. The period of study started on April 1, 2018 and ended on November 20, 2019. Daily flows were arranged in a spreadsheet then compared against daily rainfall amounts, and daily Mississippi River Stages expressed as an Elevation above Mean Sea Level (MSL). From those comparisons we developed the date ranges to study for Base Sewer Flow, Maximum Average Inflow, and Maximum Average Infiltration.

The Baseline Flow for this basin was determined to be **174,214 gallons per day(GPD)** during a seven day period of low rainfall (0.03"), and prolonged low river stage (103.23' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Inflow for this basin is **88,643 GPD** during a seven day period of rainfall (period total 5.45"), and prolonged low river stage (109.30' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Infiltration for this basin is **19,571 GPD** during a seven day period of low rainfall (period total 0.06"), and prolonged high river stage (131.18' MSL). Average ground elevation in Greenville is 123.5 MSL.

We used the alternative method of gallons per day per inch of diameter per mile of pipe (gpd/idm)*, and looked for values in excess of 1,500 gallons per day per inch of diameter per mile of pipe(gpd/idm). Utilizing this method to evaluate the inflow resulted in a value of **5,142.78 gpd/idm**, which exceeds the recommended maximum rate of 1,500 gpd/idm. Utilizing this method to evaluate the infiltration resulted in a value of **1,135.47 gpd/idm**, which does not exceed the maximum recommended rated of 1,500 gpd/idm.

We also reviewed the occurrences of Sanitary Sewer Overflows (SSOs) during the study period. There was 1 SSO in the gravity portion of this basin during the study period.

Prioritization of this basin for Ongoing Sanitary Sewer Evaluation Survey schedules is addressed in the Mini-system Matrix in Table 1.

*Per alternate EPA methods, "Metcalf & Eddy's text 'Wastewater Engineering: Collection and Pumping of Wastewater', suggests that infiltration rates for whole collection systems (including service connections) that are lower than 1500 gpd/idm are not usually excessive.

SECTION 4.10 MS14PS10 SUMMARY

The drainage basin for Mini-system 14 / Pump Station 10 has a total area of 412 acres. There are 840 active sewer accounts in the gravity portion of the mini-system. Pump Station 54 pumps into this mini-system. The flows utilized for the study were recorded from ABB Full-bore mag-meters by the City of Greenville's Supervisory Control and Data Acquisition (SCADA) system. The period of study started on April 1, 2018 and ended on November 20, 2019. Daily flows were arranged in a spreadsheet with daily flow from PS 54 deducted and then compared against daily rainfall amounts, and daily Mississippi River Stages expressed as an Elevation above Mean Sea Level (MSL). From those comparisons we developed the date ranges to study for Base Sewer Flow, Maximum Average Inflow, and Maximum Average Infiltration.

The Baseline Flow for this basin was determined to be **306,786 gallons per day(GPD)** during a seven day period of low rainfall (0.62"), and prolonged low river stage (96.65' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Inflow for this basin is **445,214 GPD** during a seven day period of rainfall (period total 5.64"), and prolonged low river stage (109.30' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Infiltration for this basin is **434,786 GPD** during a seven day period of low rainfall (period total 0.04"), and prolonged high river stage (131.29' MSL). Average ground elevation in Greenville is 123.5 MSL.

We used the alternative method of gallons per day per inch of diameter per mile of pipe (gpd/idm)*, and looked for values in excess of 1,500 gallons per day per inch of diameter per mile of pipe(gpd/idm). Utilizing this method to evaluate the inflow resulted in a value of **3,514.51 gpd/idm**, which exceeds the recommended maximum rate of 1,500 gpd/idm. Utilizing this method to evaluate the infiltration resulted in a value of **3,432.19 gpd/idm**, which exceeds the maximum recommended rated of 1,500 gpd/idm.

We also reviewed the occurrences of Sanitary Sewer Overflows (SSOs) during the study period. There was 1 SSO in the gravity portion of this basin during the study period. This basin should be evaluated.

Prioritization of this basin for Ongoing Sanitary Sewer Evaluation Survey schedules is addressed in the Mini-system Matrix in Table 1.

*Per alternate EPA methods, "Metcalf & Eddy's text 'Wastewater Engineering: Collection and Pumping of Wastewater', suggests that infiltration rates for whole collection systems (including service connections) that are lower than 1500 gpd/idm are not usually excessive.

SECTION 4.11 MS16PS54 SUMMARY

The drainage basin for Mini-system 16 / Pump Station 54 has a total area of 114 acres. There are 249 active sewer accounts in the gravity portion of the mini-system. The flows utilized for the study were recorded from ABB Full-bore mag-meters by the City of Greenville's Supervisory Control and Data Acquisition (SCADA) system. The period of study started on April 1, 2018 and ended on November 20, 2019. Daily flows were arranged in a spreadsheet then compared against daily rainfall amounts, and daily Mississippi River Stages expressed as an Elevation above Mean Sea Level (MSL). From those comparisons we developed the date ranges to study for Base Sewer Flow, Maximum Average Inflow, and Maximum Average Infiltration.

The Baseline Flow for this basin was determined to be **169,143 gallons per day(GPD)** during a seven day period of low rainfall (0.05"), and prolonged low river stage (96.82' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Inflow for this basin is **245,500 GPD** during a seven day period of rainfall (period total 6.15"), and prolonged low river stage (97.76' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Infiltration for this basin is **237,286 GPD** during a seven day period of low rainfall (period total 0.06"), and prolonged high river stage (131.07' MSL). Average ground elevation in Greenville is 123.5 MSL.

We used the alternative method of gallons per day per inch of diameter per mile of pipe (gpd/idm)*, and looked for values in excess of 1,500 gallons per day per inch of diameter per mile of pipe(gpd/idm). Utilizing this method to evaluate the inflow resulted in a value of **4,671.96 gpd/idm**, which exceeds the recommended maximum rate of 1,500 gpd/idm. Utilizing this method to evaluate the infiltration resulted in a value of **4,515.64 gpd/idm**, which exceeds the maximum recommended rated of 1,500 gpd/idm.

We also reviewed the occurrences of Sanitary Sewer Overflows (SSOs) during the study period. There were 2 SSO's in the gravity portion of this basin during the study period.

Prioritization of this basin for Ongoing Sanitary Sewer Evaluation Survey schedules is addressed in the Mini-system Matrix in Table 1.

*Per alternate EPA methods, "Metcalf & Eddy's text 'Wastewater Engineering: Collection and Pumping of Wastewater', suggests that infiltration rates for whole collection systems (including service connections) that are lower than 1500 gpd/idm are not usually excessive.

SECTION 4.12 MS17PS8 SUMMARY

The drainage basin for Mini-system 17 / Pump Station 8 has a total area of 7 acres. There are 4 active sewer accounts in this mini-system. The flows utilized for the study were recorded from ABB Full-bore mag-meters by the City of Greenville's Supervisory Control and Data Acquisition (SCADA) system. The period of study started on April 1, 2018 and ended on November 20, 2019. There were no daily flows for this mini-system as the lift station has been on bypass the entire study period.

SECTION 4.13 MS17PS9 SUMMARY

The drainage basin for Mini-system 17 / Pump Station 9 has a total area of 97 acres. There are 157 active sewer accounts in the mini-system. The flows utilized for the study were recorded from ABB Full-bore mag-meters by the City of Greenville's Supervisory Control and Data Acquisition (SCADA) system. The period of study started on April 1, 2018 and ended on November 20, 2019. Daily flows were arranged in a spreadsheet then compared against daily rainfall amounts, and daily Mississippi River Stages expressed as an Elevation above Mean Sea Level (MSL). From those comparisons we developed the date ranges to study for Base Sewer Flow, Maximum Average Inflow, and Maximum Average Infiltration.

The Baseline Flow for this basin was determined to be **55,786 gallons per day(GPD)** during a seven day period of low rainfall (0.06"), and prolonged low river stage (95.81' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Inflow for this basin is **138,857 GPD** during a seven day period of rainfall (period total 7.99"), and prolonged low river stage (97.76' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Infiltration for this basin is **83,071 GPD** during a seven day period of low rainfall (period total 0.06"), and prolonged high river stage (131.18' MSL). Average ground elevation in Greenville is 123.5 MSL.

We used the alternative method of gallons per day per inch of diameter per mile of pipe (gpd/idm)*, and looked for values in excess of 1,500 gallons per day per inch of diameter per mile of pipe(gpd/idm). Utilizing this method to evaluate the inflow resulted in a value of **4,463.94 gpd/idm**, which exceeds the recommended maximum rate of 1,500 gpd/idm. Utilizing this method to evaluate the infiltration resulted in a value of **2,670.55 gpd/idm**, which exceeds the maximum recommended rated of 1,500 gpd/idm.

We also reviewed the occurrences of Sanitary Sewer Overflows (SSOs) during the study period. There were no SSO's in the gravity portion of this basin during the study period.

Prioritization of this basin for Ongoing Sanitary Sewer Evaluation Survey schedules is addressed in the Mini-system Matrix in Table 1.

*Per alternate EPA methods, "Metcalf & Eddy's text 'Wastewater Engineering: Collection and Pumping of Wastewater', suggests that infiltration rates for whole collection systems (including service connections) that are lower than 1500 gpd/idm are not usually excessive.

SECTION 4.14 MS19-A/PS28 SUMMARY

The drainage basin for Mini-system 19-A / Pump Station 28 has a total area of 718 acres. There are 1,103 active sewer accounts in the mini-system. The flows utilized for the study were recorded from ABB Full-bore mag-meters by the City of Greenville's Supervisory Control and Data Acquisition (SCADA) system. The period of study started on April 1, 2018 and ended on November 20, 2019. Daily flows were arranged in a spreadsheet then compared against daily rainfall amounts, and daily Mississippi River Stages expressed as an Elevation above Mean Sea Level (MSL). From those comparisons we developed the date ranges to study for Base Sewer Flow, Maximum Average Inflow, and Maximum Average Infiltration.

The Baseline Flow for this basin was determined to be **430,071 gallons per day(GPD)** during a seven day period of low rainfall (0.02"), and prolonged low river stage (99.60' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Inflow for this basin is **552,214 GPD** during a seven day period of rainfall (period total 5.35"), and prolonged low river stage (107.56' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Infiltration for this basin is **224,643 GPD** during a seven day period of low rainfall (period total 0.06"), and prolonged high river stage (131.07' MSL). Average ground elevation in Greenville is 123.5 MSL.

We used the alternative method of gallons per day per inch of diameter per mile of pipe (gpd/idm)*, and looked for values in excess of 1,500 gallons per day per inch of diameter per mile of pipe(gpd/idm). Utilizing this method to evaluate the inflow resulted in a value of **3,748.65 gpd/idm**, which exceeds the recommended maximum rate of 1,500 gpd/idm. Utilizing this method to evaluate the infiltration resulted in a value of **1,524.96 gpd/idm**, which exceeds the maximum recommended rated of 1,500 gpd/idm.

We also reviewed the occurrences of Sanitary Sewer Overflows (SSOs) during the study period. There were 4 SSO's in the gravity portion of this basin during the study period.

Prioritization of this basin for Ongoing Sanitary Sewer Evaluation Survey schedules is addressed in the Mini-system Matrix in Table 1.

*Per alternate EPA methods, "Metcalf & Eddy's text 'Wastewater Engineering: Collection and Pumping of Wastewater', suggests that infiltration rates for whole collection systems (including service connections) that are lower than 1500 gpd/idm are not usually excessive.

SECTION 4.15 MS22-A/PS31 SUMMARY

The drainage basin for Mini-system 22-A / Pump Station 31 has a total area of 12 acres. There are 120 active sewer accounts in the mini-system. The flows utilized for the study were recorded from ABB Full-bore mag-meters by the City of Greenville's Supervisory Control and Data Acquisition (SCADA) system. The period of study started on April 1, 2018 and ended on November 20, 2019. Daily flows were arranged in a spreadsheet then compared against daily rainfall amounts, and daily Mississippi River Stages expressed as an Elevation above Mean Sea Level (MSL). From those comparisons we developed the date ranges to study for Base Sewer Flow, Maximum Average Inflow, and Maximum Average Infiltration.

The Baseline Flow for this basin was determined to be **16,571 gallons per day(GPD)** during a seven day period of low rainfall (0.12"), and prolonged low river stage (103' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Inflow for this basin is **4,357 GPD** during a seven day period of rainfall (period total 6.15"), and prolonged low river stage (97.76' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Infiltration for this basin is **171 GPD** during a seven day period of low rainfall (period total 0.00"), and prolonged high river stage (131.20' MSL). Average ground elevation in Greenville is 123.5 MSL.

We used the alternative method of gallons per day per inch of diameter per mile of pipe (gpd/idm)*, and looked for values in excess of 1,500 gallons per day per inch of diameter per mile of pipe(gpd/idm). Utilizing this method to evaluate the inflow resulted in a value of **865.14 gpd/idm**, which does not exceed the recommended maximum value of 1,500 gpd/idm. Utilizing this method to evaluate the infiltration resulted in a value of **0.0 gpd/idm**, which does not exceed the maximum recommended value of 1,500 gpd/idm. This shallow sewer basin is comprised of an apartment complex and a laundromat, the daily flows don't appear to be influenced by changes in the river elevation, but are influenced by rainfall.

We also reviewed the occurrences of Sanitary Sewer Overflows (SSOs) during the study period. There were no SSO's in the gravity portion of this basin during the study period.

Prioritization of this basin for Ongoing Sanitary Sewer Evaluation Survey schedules is addressed in the Mini-system Matrix in Table 1.

*Per alternate EPA methods, "Metcalf & Eddy's text 'Wastewater Engineering: Collection and Pumping of Wastewater', suggests that infiltration rates for whole collection systems (including service connections) that are lower than 1500 gpd/idm are not usually excessive.

SECTION 4.16 MS22-A/PS79 SUMMARY

The drainage basin for Mini-system 22-A / Pump Station 79 has a total area of 28 acres. There are 14 active sewer accounts in the mini-system. The flows utilized for the study were recorded from ABB Full-bore mag-meters by the City of Greenville's Supervisory Control and Data Acquisition (SCADA) system. The period of study started on April 1, 2018 and ended on November 20, 2019. Daily flows were arranged in a spreadsheet then compared against daily rainfall amounts, and daily Mississippi River Stages expressed as an Elevation above Mean Sea Level (MSL). From those comparisons we developed the date ranges to study for Base Sewer Flow, Maximum Average Inflow, and Maximum Average Infiltration.

The Baseline Flow for this basin was determined to be **16,071 gallons per day(GPD)** during a seven day period of low rainfall (0.01"), and prolonged low river stage (96.24' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Inflow for this basin is **7,929 GPD** during a seven day period of rainfall (period total 5.35"), and prolonged low river stage (107.56' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Infiltration for this basin is **4,429 GPD** during a seven day period of low rainfall (period total 0.06"), and prolonged high river stage (131.18' MSL). Average ground elevation in Greenville is 123.5 MSL.

We used the alternative method of gallons per day per inch of diameter per mile of pipe (gpd/idm)*, and looked for values in excess of 1,500 gallons per day per inch of diameter per mile of pipe(gpd/idm). Utilizing this method to evaluate the inflow resulted in a value of **2,102.18 gpd/idm**, exceeds the recommended maximum rate of 1,500 gpd/idm. Utilizing this method to evaluate the infiltration resulted in a value of **1,174.19 gpd/idm**, which does not exceed the maximum recommended rated of 1,500 gpd/idm.

We also reviewed the occurrences of Sanitary Sewer Overflows (SSOs) during the study period. There was 1 SSO in the gravity portion of this basin during the study period.

Prioritization of this basin for Ongoing Sanitary Sewer Evaluation Survey schedules is addressed in the Mini-system Matrix in Table 1.

*Per alternate EPA methods, "Metcalf & Eddy's text 'Wastewater Engineering: Collection and Pumping of Wastewater', suggests that infiltration rates for whole collection systems (including service connections) that are lower than 1500 gpd/idm are not usually excessive.

SECTION 4.17 MS22-B/PS30 SUMMARY

The drainage basin for Mini-system 22-B / Pump Station 30 has a total area of 67 acres. There are 208 active sewer accounts in the mini-system. The flows utilized for the study were recorded from ABB Full-bore mag-meters by the City of Greenville's Supervisory Control and Data Acquisition (SCADA) system. The period of study started on April 1, 2018 and ended on November 20, 2019. Daily flows were arranged in a spreadsheet then compared against daily rainfall amounts, and daily Mississippi River Stages expressed as an Elevation above Mean Sea Level (MSL). From those comparisons we developed the date ranges to study for Base Sewer Flow, Maximum Average Inflow, and Maximum Average Infiltration.

The Baseline Flow for this basin was determined to be **28,142.86 gallons per day(GPD)** during a seven day period of low rainfall (0.17"), and prolonged low river stage (99.01' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Inflow for this basin is **59,428.57 GPD** during a seven day period of rainfall (period total 5.45"), and prolonged low river stage (109.30' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Infiltration for this basin is **13,786 GPD** during a seven day period of low rainfall (period total 0.06"), and prolonged high river stage (131.39' MSL). Average ground elevation in Greenville is 123.5 MSL.

We used the alternative method of gallons per day per inch of diameter per mile of pipe (gpd/idm)*, and looked for values in excess of 1,500 gallons per day per inch of diameter per mile of pipe(gpd/idm). Utilizing this method to evaluate the inflow resulted in a value of **2,167.85 gpd/idm**, which exceeds the recommended maximum rate of 1,500 gpd/idm. Utilizing this method to evaluate the infiltration resulted in a value of **502.88 gpd/idm**, which does not exceed the maximum recommended rated of 1,500 gpd/idm.

We also reviewed the occurrences of Sanitary Sewer Overflows (SSOs) during the study period. There were 2 SSO's in the gravity portion of this basin during the study period.

Prioritization of this basin for Ongoing Sanitary Sewer Evaluation Survey schedules is addressed in the Mini-system Matrix in Table 1.

*Per alternate EPA methods, "Metcalf & Eddy's text 'Wastewater Engineering: Collection and Pumping of Wastewater', suggests that infiltration rates for whole collection systems (including service connections) that are lower than 1500 gpd/idm are not usually excessive.

SECTION 4.18 MS25PS11 SUMMARY

The drainage basin for Mini-system 25 / Pump Station 11 has a total area of 46 acres. There are 72 active sewer accounts in the mini-system. The flows utilized for the study were recorded from ABB Full-bore mag-meters by the City of Greenville's Supervisory Control and Data Acquisition (SCADA) system. The period of study started on April 1, 2018 and ended on November 20, 2019. Daily flows were arranged in a spreadsheet then compared against daily rainfall amounts, and daily Mississippi River Stages expressed as an Elevation above Mean Sea Level (MSL). From those comparisons we developed the date ranges to study for Base Sewer Flow, Maximum Average Inflow, and Maximum Average Infiltration.

The Baseline Flow for this basin was determined to be **13,286 gallons per day(GPD)** during a seven day period of low rainfall (0.70"), and prolonged low river stage (109.40' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Inflow for this basin is **28,643 GPD** during a seven day period of rainfall (period total 5.35"), and prolonged low river stage (107.56' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Infiltration for this basin is **42,643 GPD** during a seven day period of low rainfall (period total 0.24"), and prolonged high river stage (128.65' MSL). Average ground elevation in Greenville is 123.5 MSL.

We used the alternative method of gallons per day per inch of diameter per mile of pipe (gpd/idm)*, and looked for values in excess of 1,500 gallons per day per inch of diameter per mile of pipe(gpd/idm). Utilizing this method to evaluate the inflow resulted in a value of **2,073.29 gpd/idm**, which exceeds the recommended maximum rate of 1,500 gpd/idm. Utilizing this method to evaluate the infiltration resulted in a value of **3,086.67 gpd/idm**, which exceeds the maximum recommended rated of 1,500 gpd/idm.

We also reviewed the occurrences of Sanitary Sewer Overflows (SSOs) during the study period. There were no SSO's in the gravity portion of this basin during the study period.

Prioritization of this basin for Ongoing Sanitary Sewer Evaluation Survey schedules is addressed in the Mini-system Matrix in Table 1.

*Per alternate EPA methods, "Metcalf & Eddy's text 'Wastewater Engineering: Collection and Pumping of Wastewater', suggests that infiltration rates for whole collection systems (including service connections) that are lower than 1500 gpd/idm are not usually excessive.

SECTION 4.19 MS25PS12 SUMMARY

The drainage basin for Mini-system 25 / Pump Station 12 has a total area of 55 acres. There are 106 active sewer accounts in the mini-system. The flows utilized for the study were recorded from ABB Full-bore mag-meters by the City of Greenville's Supervisory Control and Data Acquisition (SCADA) system. The period of study started on April 1, 2018 and ended on November 20, 2019. Daily flows were arranged in a spreadsheet then compared against daily rainfall amounts, and daily Mississippi River Stages expressed as an Elevation above Mean Sea Level (MSL). From those comparisons we developed the date ranges to study for Base Sewer Flow, Maximum Average Inflow, and Maximum Average Infiltration.

The Baseline Flow for this basin was determined to be **24,357 gallons per day(GPD)** during a seven day period of low rainfall (0.03"), and prolonged low river stage (106.24' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Inflow for this basin is **71,000 GPD** during a seven day period of rainfall (period total 6.15"), and prolonged low river stage (97.76' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Infiltration for this basin is **75,643 GPD** during a seven day period of low rainfall (period total 0.48"), and prolonged high river stage (131.67' MSL). Average ground elevation in Greenville is 123.5 MSL.

We used the alternative method of gallons per day per inch of diameter per mile of pipe (gpd/idm)*, and looked for values in excess of 1,500 gallons per day per inch of diameter per mile of pipe(gpd/idm). Utilizing this method to evaluate the inflow resulted in a value of **9,011.54 gpd/idm**, which exceeds the recommended maximum rate of 1,500 gpd/idm. Utilizing this method to evaluate the infiltration resulted in a value of **3,479.17 gpd/idm**, which exceeds the maximum recommended rated of 1,500 gpd/idm.

We also reviewed the occurrences of Sanitary Sewer Overflows (SSOs) during the study period. There were no SSO's in the gravity portion of this basin during the study period.

Prioritization of this basin for Ongoing Sanitary Sewer Evaluation Survey schedules is addressed in the Mini-system Matrix in Table 1.

*Per alternate EPA methods, "Metcalf & Eddy's text 'Wastewater Engineering: Collection and Pumping of Wastewater', suggests that infiltration rates for whole collection systems (including service connections) that are lower than 1500 gpd/idm are not usually excessive.

SECTION 4.20 MS28-A/PS46 SUMMARY

The drainage basin for Mini-system 28-B / Pump Station 46 has a total area of 84 acres. There are 174 active sewer accounts in the mini-system. The flows utilized for the study were recorded from ABB Full-bore mag-meters by the City of Greenville's Supervisory Control and Data Acquisition (SCADA) system. The period of study started on April 1, 2018 and ended on November 20, 2019. Daily flows were arranged in a spreadsheet then compared against daily rainfall amounts, and daily Mississippi River Stages expressed as an Elevation above Mean Sea Level (MSL). From those comparisons we developed the date ranges to study for Base Sewer Flow, Maximum Average Inflow, and Maximum Average Infiltration.

The Baseline Flow for this basin was determined to be **28,071 gallons per day(GPD)** during a seven day period of low rainfall (0.05"), and prolonged low river stage (96.82' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Inflow for this basin is **22,571 GPD** during a seven day period of rainfall (period total 6.15"), and prolonged low river stage (97.76' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Infiltration for this basin is **17,071 GPD** during a seven day period of low rainfall (period total 0.06"), and prolonged high river stage (131.07' MSL). Average ground elevation in Greenville is 123.5 MSL.

We used the alternative method of gallons per day per inch of diameter per mile of pipe (gpd/idm)*, and looked for values in excess of 1,500 gallons per day per inch of diameter per mile of pipe(gpd/idm). Utilizing this method to evaluate the inflow resulted in a value of **888.86 gpd/idm**, which dpes not exceed the recommended maximum rate of 1,500 gpd/idm. Utilizing this method to evaluate the infiltration resulted in a value of **672.27 gpd/idm**, which does not exceed the maximum recommended rated of 1,500 gpd/idm.

We also reviewed the occurrences of Sanitary Sewer Overflows (SSOs) during the study period. There were 3 SSO's in the gravity portion of this basin during the study period.

Prioritization of this basin for Ongoing Sanitary Sewer Evaluation Survey schedules is addressed in the Mini-system Matrix in Table 1.

*Per alternate EPA methods, "Metcalf & Eddy's text 'Wastewater Engineering: Collection and Pumping of Wastewater', suggests that infiltration rates for whole collection systems (including service connections) that are lower than 1500 gpd/idm are not usually excessive.

SECTION 4.21 MS28-B/PS70 SUMMARY

The drainage basin for Mini-system 28-B / Pump Station 70 has a total area of 64 acres. There are 104 active sewer accounts in the mini-system. The flows utilized for the study were recorded from ABB Full-bore mag-meters by the City of Greenville's Supervisory Control and Data Acquisition (SCADA) system. The period of study started on April 1, 2018 and ended on November 20, 2019. Daily flows were arranged in a spreadsheet then compared against daily rainfall amounts, and daily Mississippi River Stages expressed as an Elevation above Mean Sea Level (MSL). From those comparisons we developed the date ranges to study for Base Sewer Flow, Maximum Average Inflow, and Maximum Average Infiltration.

The Baseline Flow for this basin was determined to be **24,571 gallons per day(GPD)** during a seven day period of low rainfall (0.05"), and prolonged low river stage (96.82' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Inflow for this basin is **140,714 GPD** during a seven day period of rainfall (period total 2.65"), and prolonged low river stage (114.79' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Infiltration for this basin is **15,214 GPD** during a seven day period of low rainfall (period total 0.06"), and prolonged high river stage (131.07' MSL). Average ground elevation in Greenville is 123.5 MSL.

We used the alternative method of gallons per day per inch of diameter per mile of pipe (gpd/idm)*, and looked for values in excess of 1,500 gallons per day per inch of diameter per mile of pipe(gpd/idm). Utilizing this method to evaluate the inflow resulted in a value of **7,366.66 gpd/idm**, which exceeds the recommended maximum rate of 1,500 gpd/idm. Utilizing this method to evaluate the infiltration resulted in a value of **796.50 gpd/idm**, which does not exceed the maximum recommended rated of 1,500 gpd/idm.

We also reviewed the occurrences of Sanitary Sewer Overflows (SSOs) during the study period. There were 2 SSO's in the gravity portion of this basin during the study period.

Prioritization of this basin for Ongoing Sanitary Sewer Evaluation Survey schedules is addressed in the Mini-system Matrix in Table 1.

*Per alternate EPA methods, "Metcalf & Eddy's text 'Wastewater Engineering: Collection and Pumping of Wastewater', suggests that infiltration rates for whole collection systems (including service connections) that are lower than 1500 gpd/idm are not usually excessive.

SECTION 4.22 MS28-C/PS100 SUMMARY

The drainage basin for Mini-system 28-C / Pump Station 100 has a total area of 72 acres. There are 71 active sewer accounts in the mini-system. The flows utilized for the study were recorded from ABB Full-bore mag-meters by the City of Greenville's Supervisory Control and Data Acquisition (SCADA) system. The period of study started on April 1, 2018 and ended on November 20, 2019. Daily flows were arranged in a spreadsheet then compared against daily rainfall amounts, and daily Mississippi River Stages expressed as an Elevation above Mean Sea Level (MSL). From those comparisons we developed the date ranges to study for Base Sewer Flow, Maximum Average Inflow, and Maximum Average Infiltration.

The Baseline Flow for this basin was determined to be **10,286 gallons per day(GPD)** during a seven day period of low rainfall (0.00"), and prolonged low river stage (100.55' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Inflow for this basin is **59,000 GPD** during a seven day period of rainfall (period total 5.45"), and prolonged low river stage (109.30' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Infiltration for this basin is **16,571 GPD** during a seven day period of low rainfall (period total 0.06"), and prolonged high river stage (131.07' MSL). Average ground elevation in Greenville is 123.5 MSL.

We used the alternative method of gallons per day per inch of diameter per mile of pipe (gpd/idm)*, and looked for values in excess of 1,500 gallons per day per inch of diameter per mile of pipe(gpd/idm). Utilizing this method to evaluate the inflow resulted in a value of **4,243.22 gpd/idm**, which exceeds the recommended maximum rate of 1,500 gpd/idm. Utilizing this method to evaluate the infiltration resulted in a value of **1,191.80 gpd/idm**, which does not exceed the maximum recommended rated of 1,500 gpd/idm.

We also reviewed the occurrences of Sanitary Sewer Overflows (SSOs) during the study period. There were no SSO's in the gravity portion of this basin during the study period.

Prioritization of this basin for Ongoing Sanitary Sewer Evaluation Survey schedules is addressed in the Mini-system Matrix in Table 1.

*Per alternate EPA methods, "Metcalf & Eddy's text 'Wastewater Engineering: Collection and Pumping of Wastewater', suggests that infiltration rates for whole collection systems (including service connections) that are lower than 1500 gpd/idm are not usually excessive.

SECTION 4.23 MS28-D/PS95 SUMMARY

The drainage basin for Mini-system 28-D / Pump Station 95 has a total area of 55 acres. There are 46 active sewer accounts in the mini-system. The flows utilized for the study were recorded from ABB Full-bore mag-meters by the City of Greenville's Supervisory Control and Data Acquisition (SCADA) system. The period of study started on April 1, 2018 and ended on November 20, 2019. Daily flows were arranged in a spreadsheet then compared against daily rainfall amounts, and daily Mississippi River Stages expressed as an Elevation above Mean Sea Level (MSL). From those comparisons we developed the date ranges to study for Base Sewer Flow, Maximum Average Inflow, and Maximum Average Infiltration.

The Baseline Flow for this basin was determined to be **9,143 gallons per day(GPD)** during a seven day period of low rainfall (0.05"), and prolonged low river stage (96.82' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Inflow for this basin is **3,786 GPD** during a seven day period of rainfall (period total 6.15"), and prolonged low river stage (97.76' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Infiltration for this basin is **3,143 GPD** during a seven day period of low rainfall (period total 0.06"), and prolonged high river stage (130.88' MSL). Average ground elevation in Greenville is 123.5 MSL.

We used the alternative method of gallons per day per inch of diameter per mile of pipe (gpd/idm)*, and looked for values in excess of 1,500 gallons per day per inch of diameter per mile of pipe(gpd/idm). Utilizing this method to evaluate the inflow resulted in a value of **435.98 gpd/idm**, does not exceed the recommended maximum rate of 1,500 gpd/idm. Utilizing this method to evaluate the infiltration resulted in a value of **361.94 gpd/idm**, which does not exceed the maximum recommended rated of 1,500 gpd/idm.

We also reviewed the occurrences of Sanitary Sewer Overflows (SSOs) during the study period. There were 2 SSO's in the gravity portion of this basin during the study period.

Prioritization of this basin for Ongoing Sanitary Sewer Evaluation Survey schedules is addressed in the Mini-system Matrix in Table 1.

*Per alternate EPA methods, "Metcalf & Eddy's text 'Wastewater Engineering: Collection and Pumping of Wastewater', suggests that infiltration rates for whole collection systems (including service connections) that are lower than 1500 gpd/idm are not usually excessive.

SECTION 4.24 MS29PS52 SUMMARY

The drainage basin for Mini-system 29A / Pump Station 52 has a total area of 467 acres. The basin receives flow from pump stations 23, 24, 25, 26, and 57. There are 83 active sewer accounts in the gravity portion of the mini-system, consisting of 15 residential and 68 commercial or light industrial. The flows utilized for the study were recorded from ABB Full-bore mag-meters by the City of Greenville's Supervisory Control and Data Acquisition (SCADA) system. The period of study started on June 7, 2018 and ended on October 28, 2019. Daily flows for Pump Stations 52, 23, 24, 25, 26, and 57 were arranged in an Excel Spreadsheet. Daily flows from Pump Stations 23, 24, 25, 26, and 57 (influent) were deducted from the daily flows from Pump Station 52 (effluent) to determine the net direct gravity flow from within the Pump Station 52 sewer basin. Daily flows were then compared against daily rainfall amounts, and daily Mississippi River Stages expressed as an Elevation above Mean Sea Level (MSL). From those comparisons we developed the date ranges to study for Base Sewer Flow, Maximum Average Inflow, and Maximum Average Infiltration.

The Baseline Flow for this basin was determined to be **48,929 gallons per day(GPD)** during a seven day period of low rainfall (0.45"), and prolonged low river stage (95.64' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Inflow for this basin is **350,428 GPD** during a seven day period of intense rainfall (period total 5.35"), and prolonged low river stage (107.56' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Infiltration for this basin is **90,571 GPD** during a seven day period of low rainfall (period total 0.06"), and prolonged high river stage (131.18' MSL). Average ground elevation in Greenville is 123.5 MSL.

We used the alternative method of gallons per day per inch of diameter per mile of pipe (gpd/idm)*, and look for values in excess of 1,500 gallons per day per inch of diameter per mile of pipe(gpd/idm). Utilizing this method to evaluate the inflow resulted in a value of **3,752.16 gpd/idm**, which exceeds the recommended maximum rate of 1,500 gpd/idm. Utilizing this method to evaluate the infiltration resulted in a value of **969.78 gpd/idm**, which exceeds the maximum recommended rated of 1,500 gpd/idm.

As a validation to the above process, we also calculated the maximum I/I per capita, the result was 800 gallons per day per capita, which exceeds the recommended maximum of 275 gpdc

We also reviewed the occurrences of Sanitary Sewer Overflows (SSOs) during the study period. There were 2 SSO's in the gravity portion of this basin during the study period.

Prioritization of this basin for Ongoing Sanitary Sewer Evaluation Survey schedules is addressed in the Mini-system Matrix in Table 1.

*Per alternate EPA methods, "Metcalf & Eddy's text 'Wastewater Engineering: Collection and Pumping of Wastewater', suggests that infiltration rates for whole collection systems (including service connections) that are lower than 1500 gpd/idm are not usually excessive.

SECTION 4.25 MS29-A/PS57 SUMMARY

The drainage basin for Mini-system 29-A / Pump Station 57 has a total area of 99 acres. There are 9 active sewer accounts in the mini-system. The flows utilized for the study were recorded from ABB Full-bore mag-meters by the City of Greenville's Supervisory Control and Data Acquisition (SCADA) system. The period of study started on April 1, 2018 and ended on November 20, 2019. Daily flows were arranged in a spreadsheet then compared against daily rainfall amounts, and daily Mississippi River Stages expressed as an Elevation above Mean Sea Level (MSL). From those comparisons we developed the date ranges to study for Base Sewer Flow, Maximum Average Inflow, and Maximum Average Infiltration.

The Baseline Flow for this basin was determined to be **14,500 gallons per day(GPD)** during a seven day period of low rainfall (0.17"), and prolonged low river stage (99.01' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Inflow for this basin is **28,214 GPD** during a seven day period of rainfall (period total 5.35"), and prolonged low river stage (107.56' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Infiltration for this basin is **7,429 GPD** during a seven day period of low rainfall (period total 0.06"), and prolonged high river stage (131.29' MSL). Average ground elevation in Greenville is 123.5 MSL.

We used the alternative method of gallons per day per inch of diameter per mile of pipe (gpd/idm)*, and looked for values in excess of 1,500 gallons per day per inch of diameter per mile of pipe(gpd/idm). Utilizing this method to evaluate the inflow resulted in a value of **2,437.84 gpd/idm**, exceeds the recommended maximum rate of 1,500 gpd/idm. Utilizing this method to evaluate the infiltration resulted in a value of **641.86 gpd/idm**, which does not exceed the maximum recommended rated of 1,500 gpd/idm.

We also reviewed the occurrences of Sanitary Sewer Overflows (SSOs) during the study period. There were no SSO's in the gravity portion of this basin during the study period.

Prioritization of this basin for Ongoing Sanitary Sewer Evaluation Survey schedules is addressed in the Mini-system Matrix in Table 1.

*Per alternate EPA methods, "Metcalf & Eddy's text 'Wastewater Engineering: Collection and Pumping of Wastewater', suggests that infiltration rates for whole collection systems (including service connections) that are lower than 1500 gpd/idm are not usually excessive.

SECTION 4.26 MS29-B/PS26 SUMMARY

The drainage basin for Mini-system 29-B / Pump Station 26 has a total area of 226 acres. There are 26 active sewer accounts in the mini-system. The flows utilized for the study were recorded from ABB Full-bore mag-meters by the City of Greenville's Supervisory Control and Data Acquisition (SCADA) system. The period of study started on April 1, 2018 and ended on November 20, 2019. Daily flows were arranged in a spreadsheet then compared against daily rainfall amounts, and daily Mississippi River Stages expressed as an Elevation above Mean Sea Level (MSL). From those comparisons we developed the date ranges to study for Base Sewer Flow, Maximum Average Inflow, and Maximum Average Infiltration.

The Baseline Flow for this basin was determined to be **18,643 gallons per day(GPD)** during a seven day period of low rainfall (0.00"), and prolonged low river stage (109.97' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Inflow for this basin is **119,071 GPD** during a seven day period of rainfall (period total 5.35"), and prolonged low river stage (107.56' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Infiltration for this basin is **9,500 GPD** during a seven day period of low rainfall (period total 0.06"), and prolonged high river stage (131.29' MSL). Average ground elevation in Greenville is 123.5 MSL.

We used the alternative method of gallons per day per inch of diameter per mile of pipe (gpd/idm)*, and looked for values in excess of 1,500 gallons per day per inch of diameter per mile of pipe(gpd/idm). Utilizing this method to evaluate the inflow resulted in a value of **7,757.96 gpd/idm**, which exceeds the recommended maximum value of 1,500 gpd/idm. Utilizing this method to evaluate the infiltration resulted in a value of **618.96 gpd/idm**, which does not exceed the maximum recommended value of 1,500 gpd/idm.

We also reviewed the occurrences of Sanitary Sewer Overflows (SSOs) during the study period. There were no SSO's in the gravity portion of this basin during the study period.

Prioritization of this basin for Ongoing Sanitary Sewer Evaluation Survey schedules is addressed in the Mini-system Matrix in Table 1.

*Per alternate EPA methods, "Metcalf & Eddy's text 'Wastewater Engineering: Collection and Pumping of Wastewater', suggests that infiltration rates for whole collection systems (including service connections) that are lower than 1500 gpd/idm are not usually excessive.

SECTION 4.27 MS29-B/PS47 SUMMARY

The drainage basin for Mini-system 29-B / Pump Station 47 has a total area of 36 acres. There are 3 active sewer accounts in the mini-system. The flows utilized for the study were recorded from ABB Full-bore mag-meters by the City of Greenville's Supervisory Control and Data Acquisition (SCADA) system. The period of study started on April 1, 2018 and ended on November 20, 2019. Daily flows were arranged in a spreadsheet then compared against daily rainfall amounts, and daily Mississippi River Stages expressed as an Elevation above Mean Sea Level (MSL). From those comparisons we developed the date ranges to study for Base Sewer Flow, Maximum Average Inflow, and Maximum Average Infiltration.

The Baseline Flow for this basin was determined to be **1,500 gallons per day(GPD)** during a seven day period of low rainfall (0.06"), and prolonged low river stage (95.81' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Inflow for this basin is **4,714 GPD** during a seven day period of rainfall (period total 3.49"), and prolonged low river stage (110.84' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Infiltration for this basin is **2,143 GPD** during a seven day period of low rainfall (period total 1.10"), and prolonged high river stage (131.76' MSL). Average ground elevation in Greenville is 123.5 MSL.

We used the alternative method of gallons per day per inch of diameter per mile of pipe (gpd/idm)*, and looked for values in excess of 1,500 gallons per day per inch of diameter per mile of pipe(gpd/idm). Utilizing this method to evaluate the inflow resulted in a value of **1,486.59 gpd/idm**, which does not exceed the recommended maximum value of 1,500 gpd/idm. Utilizing this method to evaluate the infiltration resulted in a value of **675.72 gpd/idm**, which does not exceed the maximum recommended value of 1,500 gpd/idm.

We also reviewed the occurrences of Sanitary Sewer Overflows (SSOs) during the study period. There were no SSO's in the gravity portion of this basin during the study period.

Prioritization of this basin for Ongoing Sanitary Sewer Evaluation Survey schedules is addressed in the Mini-system Matrix in Table 1.

*Per alternate EPA methods, "Metcalf & Eddy's text 'Wastewater Engineering: Collection and Pumping of Wastewater', suggests that infiltration rates for whole collection systems (including service connections) that are lower than 1500 gpd/idm are not usually excessive.

SECTION 4.28 MS31-A/PS19 SUMMARY

The drainage basin for Mini-system 31-A / Pump Station 19 has a total area of 86 acres. There are 13 active sewer accounts in the mini-system. The flows utilized for the study were recorded from ABB Full-bore mag-meters by the City of Greenville's Supervisory Control and Data Acquisition (SCADA) system. The period of study started on April 1, 2018 and ended on November 20, 2019. Daily flows were arranged in a spreadsheet then compared against daily rainfall amounts, and daily Mississippi River Stages expressed as an Elevation above Mean Sea Level (MSL). From those comparisons we developed the date ranges to study for Base Sewer Flow, Maximum Average Inflow, and Maximum Average Infiltration.

The Baseline Flow for this basin was determined to be **15,071 gallons per day(GPD)** during a seven day period of low rainfall (0.05"), and prolonged low river stage (108.70' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Inflow for this basin is **93,786 GPD** during a seven day period of rainfall (period total 1.10"), and prolonged low river stage (92.39' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Infiltration for this basin is **9,786 GPD** during a seven day period of low rainfall (period total 0.10"), and prolonged high river stage (131.18' MSL). Average ground elevation in Greenville is 123.5 MSL.

We used the alternative method of gallons per day per inch of diameter per mile of pipe (gpd/idm)*, and looked for values in excess of 1,500 gallons per day per inch of diameter per mile of pipe(gpd/idm). Utilizing this method to evaluate the inflow resulted in a value of **29,510.64 gpd/idm**, which exceeds the recommended maximum value of 1,500 gpd/idm. Utilizing this method to evaluate the infiltration resulted in a value of **3,079.18 gpd/idm**, which exceeds the maximum recommended value of 1,500 gpd/idm.

We also reviewed the occurrences of Sanitary Sewer Overflows (SSOs) during the study period. There were no SSO's in the gravity portion of this basin during the study period.

Prioritization of this basin for Ongoing Sanitary Sewer Evaluation Survey schedules is addressed in the Mini-system Matrix in Table 1.

*Per alternate EPA methods, "Metcalf & Eddy's text 'Wastewater Engineering: Collection and Pumping of Wastewater', suggests that infiltration rates for whole collection systems (including service connections) that are lower than 1500 gpd/idm are not usually excessive.

SECTION 4.29 MS31-B/PS51 SUMMARY

The drainage basin for Mini-system 31-A / Pump Station 51 has a total area of 53 acres. There are 4 active sewer accounts in the mini-system. The flows utilized for the study were recorded from ABB Full-bore mag-meters by the City of Greenville's Supervisory Control and Data Acquisition (SCADA) system. The period of study started on April 1, 2018 and ended on November 20, 2019. Daily flows were arranged in a spreadsheet then compared against daily rainfall amounts, and daily Mississippi River Stages expressed as an Elevation above Mean Sea Level (MSL). From those comparisons we developed the date ranges to study for Base Sewer Flow, Maximum Average Inflow, and Maximum Average Infiltration.

The Baseline Flow for this basin was determined to be **20,357 gallons per day(GPD)** during a seven day period of low rainfall (0.03"), and prolonged low river stage (95.90' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Inflow for this basin is **65,642 GPD** during a seven day period of rainfall (period total 3.28"), and prolonged low river stage (114.56' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Infiltration for this basin is **393 GPD** during a seven day period of low rainfall (period total 0.44"), and prolonged high river stage (121.89' MSL). Average ground elevation in Greenville is 123.5 MSL.

We used the alternative method of gallons per day per inch of diameter per mile of pipe (gpd/idm)*, and looked for values in excess of 1,500 gallons per day per inch of diameter per mile of pipe(gpd/idm). Utilizing this method to evaluate the inflow resulted in a value of **10,687.79 gpd/idm**, which exceeds the recommended maximum value of 1,500 gpd/idm. Utilizing this method to evaluate the infiltration resulted in a value of **63.96 gpd/idm**, which does not exceed the maximum recommended value of 1,500 gpd/idm.

We also reviewed the occurrences of Sanitary Sewer Overflows (SSOs) during the study period. There were no SSO's in the gravity portion of this basin during the study period.

Prioritization of this basin for Ongoing Sanitary Sewer Evaluation Survey schedules is addressed in the Mini-system Matrix in Table 1.

*Per alternate EPA methods, "Metcalf & Eddy's text 'Wastewater Engineering: Collection and Pumping of Wastewater', suggests that infiltration rates for whole collection systems (including service connections) that are lower than 1500 gpd/idm are not usually excessive.

SECTION 4.30 MS33PS91-E SUMMARY

The drainage basin for Mini-system 33 / Pump Station 91-E has a total area of 200 acres. There are 19 active sewer accounts in the mini-system. The flows utilized for the study were recorded from ABB Full-bore mag-meters by the City of Greenville's Supervisory Control and Data Acquisition (SCADA) system. The period of study started on April 1, 2018 and ended on November 20, 2019. Daily flows were arranged in a spreadsheet then compared against daily rainfall amounts, and daily Mississippi River Stages expressed as an Elevation above Mean Sea Level (MSL). From those comparisons we developed the date ranges to study for Base Sewer Flow, Maximum Average Inflow, and Maximum Average Infiltration.

The Baseline Flow for this basin was determined to be **5,786 gallons per day(GPD)** during a period of low rainfall (0.27"), and prolonged low river stage (95.81' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Inflow for this basin is **101,714 GPD** during a period of rainfall (period total 6.78"), and prolonged low river stage (97.76' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Infiltration for this basin is **1,642.86 GPD** during a period of low rainfall (period total 0.43"), and prolonged high river stage (128.30' MSL). Average ground elevation in Greenville is 123.5 MSL.

We used the alternative method of gallons per day per inch of diameter per mile of pipe (gpd/idm)*, and looked for values in excess of 1,500 gallons per day per inch of diameter per mile of pipe(gpd/idm). Utilizing this method to evaluate the inflow resulted in a value of **7,737.38 gpd/idm**, which exceeds the recommended maximum rate of 1,500 gpd/idm. Utilizing this method to evaluate the infiltration resulted in a value of **124.97 gpd/idm**, which does not exceed the maximum recommended rated of 1,500 gpd/idm.

We also reviewed the occurrences of Sanitary Sewer Overflows (SSOs) during the study period. There were no SSO's in the gravity portion of this basin during the study period.

Prioritization of this basin for Ongoing Sanitary Sewer Evaluation Survey schedules is addressed in the Mini-system Matrix in Table 1.

*Per alternate EPA methods, "Metcalf & Eddy's text 'Wastewater Engineering: Collection and Pumping of Wastewater', suggests that infiltration rates for whole collection systems (including service connections) that are lower than 1500 gpd/idm are not usually excessive.

SECTION 4.31 MS33PS91-F SUMMARY

The drainage basin for Mini-system 33 / Pump Station 91-F has a total area of 44 acres. There are 4 active sewer accounts in the mini-system. The flows utilized for the study were recorded from ABB Full-bore mag-meters by the City of Greenville's Supervisory Control and Data Acquisition (SCADA) system. The period of study started on April 1, 2018 and ended on November 20, 2019. Daily flows were arranged in a spreadsheet then compared against daily rainfall amounts, and daily Mississippi River Stages expressed as an Elevation above Mean Sea Level (MSL). From those comparisons we developed the date ranges to study for Base Sewer Flow, Maximum Average Inflow, and Maximum Average Infiltration.

The Baseline Flow for this basin was determined to be **2,929 gallons per day(GPD)** during a seven day period of low rainfall (0.00"), and prolonged low river stage (112.28' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Inflow for this basin is **75,643 GPD** during a seven day period of rainfall (period total 5.95"), and prolonged low river stage (97.87' MSL). Average ground elevation in Greenville is 123.5 MSL.

The Average Maximum Infiltration for this basin is **11,500 GPD** during a seven day period of low rainfall (period total 0.08"), and prolonged high river stage (131.07' MSL). Average ground elevation in Greenville is 123.5 MSL.

We used the alternative method of gallons per day per inch of diameter per mile of pipe (gpd/idm)*, and looked for values in excess of 1,500 gallons per day per inch of diameter per mile of pipe(gpd/idm). Utilizing this method to evaluate the inflow resulted in a value of **15,569.71 gpd/idm**, which does not exceed the recommended maximum rate of 1,500 gpd/idm. Utilizing this method to evaluate the infiltration resulted in a value of **2,367.07 gpd/idm**, which exceeds the maximum recommended rated of 1,500 gpd/idm.

We also reviewed the occurrences of Sanitary Sewer Overflows (SSOs) during the study period. There were no SSO's in the gravity portion of this basin during the study period.

Prioritization of this basin for Ongoing Sanitary Sewer Evaluation Survey schedules is addressed in the Mini-system Matrix in Table 1.

*Per alternate EPA methods, "Metcalf & Eddy's text 'Wastewater Engineering: Collection and Pumping of Wastewater', suggests that infiltration rates for whole collection systems (including service connections) that are lower than 1500 gpd/idm are not usually excessive.

[END OF PROGRAM]

FIGURES

FIGURE 1

GANTT CHART

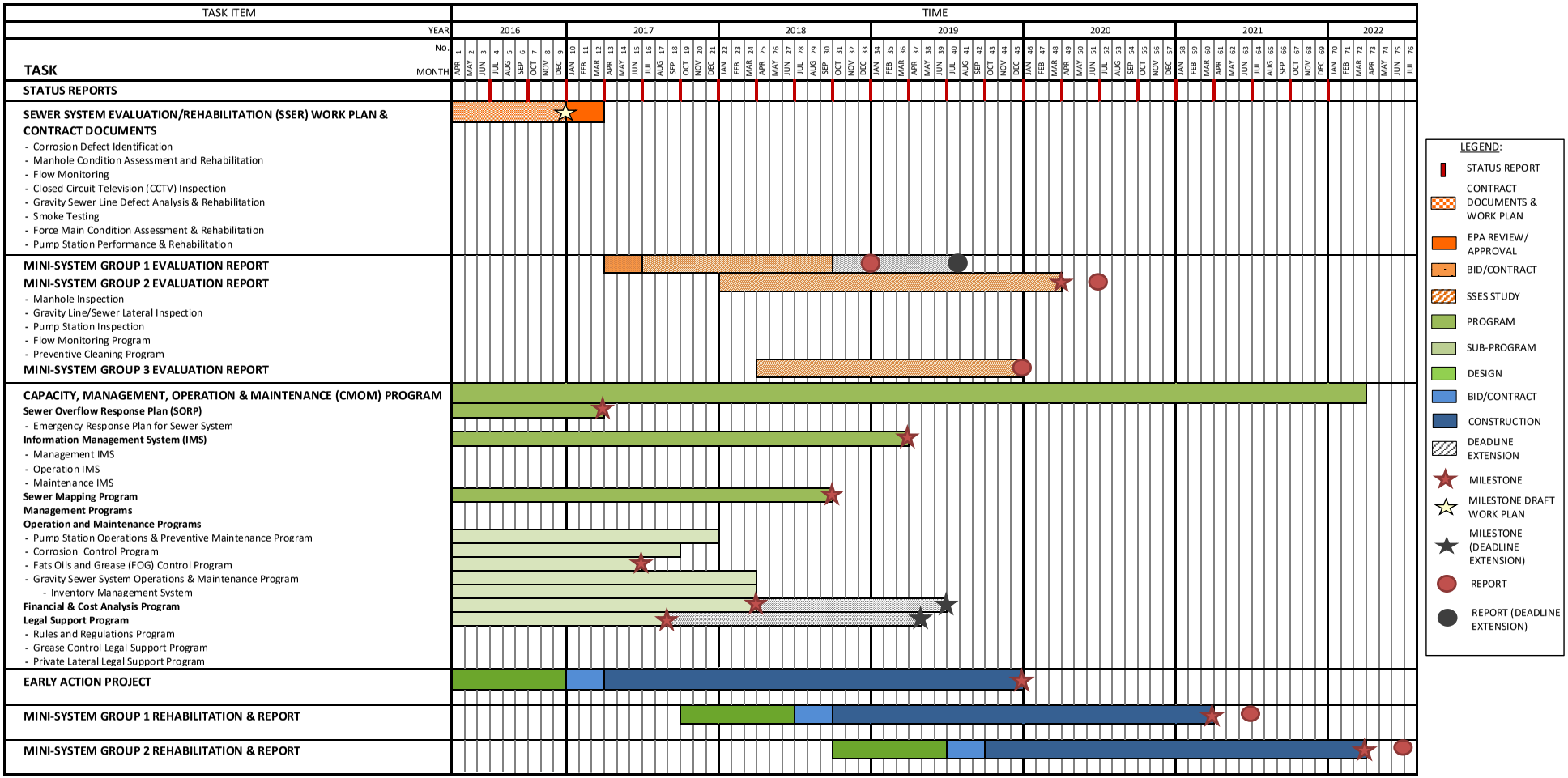


FIGURE 1

GANTT CHART - SANITARY SEWER REHABILITATION PROGRAM

GREENVILLE, MS

Revised July 16, 2019

FIGURE 2

SCHEMATIC OF SANITARY SEWER SHEDS / MINI-SYSTEMS

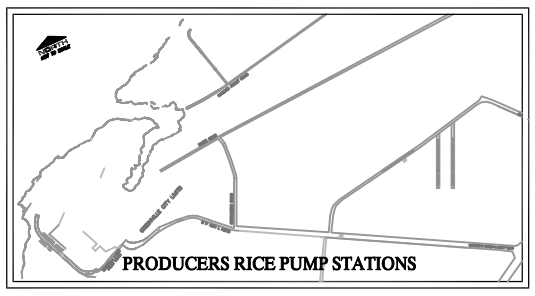
FIGURE 3

OVERALL MAP OF MINI-SYSTEMS

LEGEND:

- GROUP 1
- GROUP 2
- GROUP 3
- THEOBALD SEWERSHED
- DANIEL SEWERSHED
- PERIPHERAL SEWERSHED
- NO PUBLIC SEWER AVAILABLE

0 1500 3000



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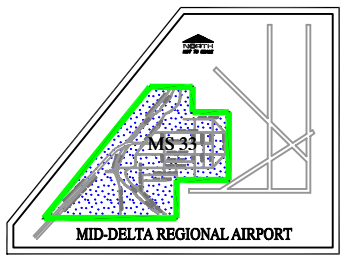

INSERT "B"

MS 1 PS 1
MS 1 PS 2
MS 2 PS 3
MS 2 PS 4&5
MS 31A PS 18 & 19
MS 32b PS 20
MS 32a PS 21 & 22
MS 31B PS 23 & 94
MS 3b PS 55
MS 3c PS 55
MS 3a PS 55
MS 3e PS 6
MS 17 PS 8 & 9
MS 18 PS 28
MS 4b PS 7
MS 4a PS 7
MS 14 PS 10
MS 30 PS 24 & 56
MS 3d PS 55
MS 19b PS 28
MS 16 PS 54
MS 5 PS 14
MS 15 PS 10
MS 6 PS 13 & 15
MS 13 PS 10
MS 20 PS 27, 28, 58 & 86
MS 29c PS 25
MS 19a PS 28
MS 7 PS 16
MS 25 PS 11 & 12
MS 21a PS 29
MS 21b PS 29
MS 8 PS 17
MS 29a PS 52
MS 9a PS 40
MS 23 PS 34
MS 22a PS 34
MS 22b PS 30
MS 29b PS 26
MS 8 PS 59
MS 9b PS 40
MS 9d PS 49
MS 9c PS 40
MS 10 PS 38
MS 11 PS 37
MS 24 PS 32 & 63
MS 27 PS 71
MS 27 PS 41
MS 12a PS 36
MS 12b PS 35
MS 27 PS 42
MS 27 PS 43
MS 27 PS53
MS 26 GRAVITY
MS 28a PS 53
MS 28d PS 95
MS 28c PS 100
MS 26 PS 44 & 45
MS 28b PS 46 & 70

ARCHER ISLAND
LAKE FERGUSON
DELTA COMPRESS
GREENVILLE COMPRESS
LUCY WEBB ELEMENTARY SCHOOL
CARRIE STERN ELEMENTARY SCHOOL
BUSTER BROWN COMMUNITY CENTER
JEWISH CEMETARY
GREENVILLE HIGH SCHOOL
FOOTBALL STADIUM
Greenville Cemetery
Greenville Garden Club
Washington School
Stakeman Jr. High School
Greenville Mall
AGRICULTURAL
SUPER WAL-MART
DELTA REGIONAL MEDICAL CENTER SOUTH CAMPUS
GREENVILLE CHRISTIAN SCHOOL
SEE INSERT "A" FOR DETAIL

CITY OF GREENVILLE MISSISSIPPI

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MINI-SYSTEM PROJECT MAP INDEX
SEWER REHABILITATION PROGRAM
GREENVILLE, MISSISSIPPI

Burle Proj. No.:	
File Name:	EPA CONFERENCE 12-2-15.DWG
Date:	12/9/2015
Scale:	1"=3000'
Drawn by:	PND
Checked:	PND

Revisions:

Revisions:

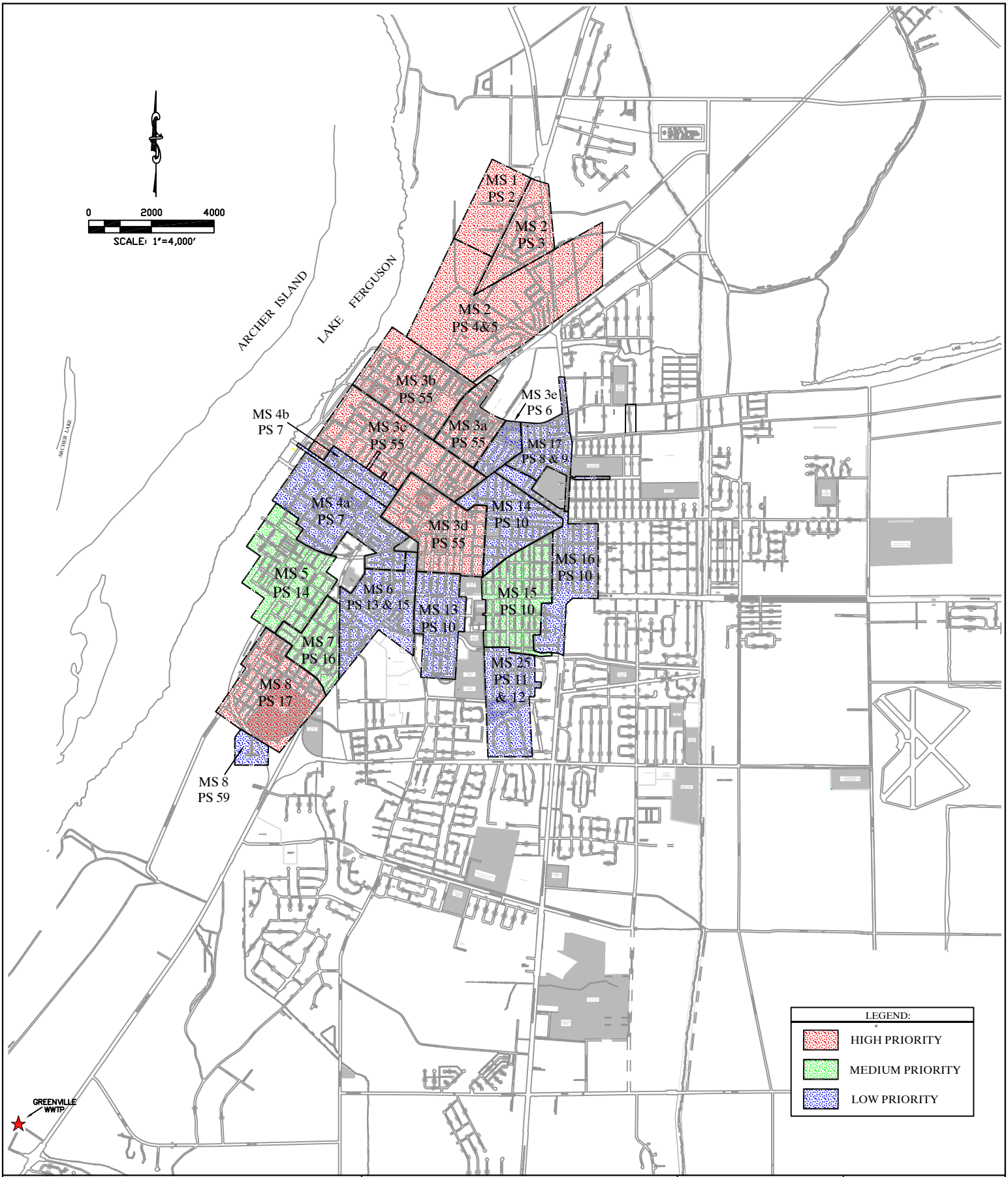
MINI-SYSTEM MAP WITH SEWERSHEDS

1

Drawing Number

FIGURE 4

THEOBALD SEWER SHED MAP



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CITY OF GREENVILLE
THEOBALD SEWERSHED
MINI SYSTEM LOCATION MAP
GREENVILLE, MISSISSIPPI

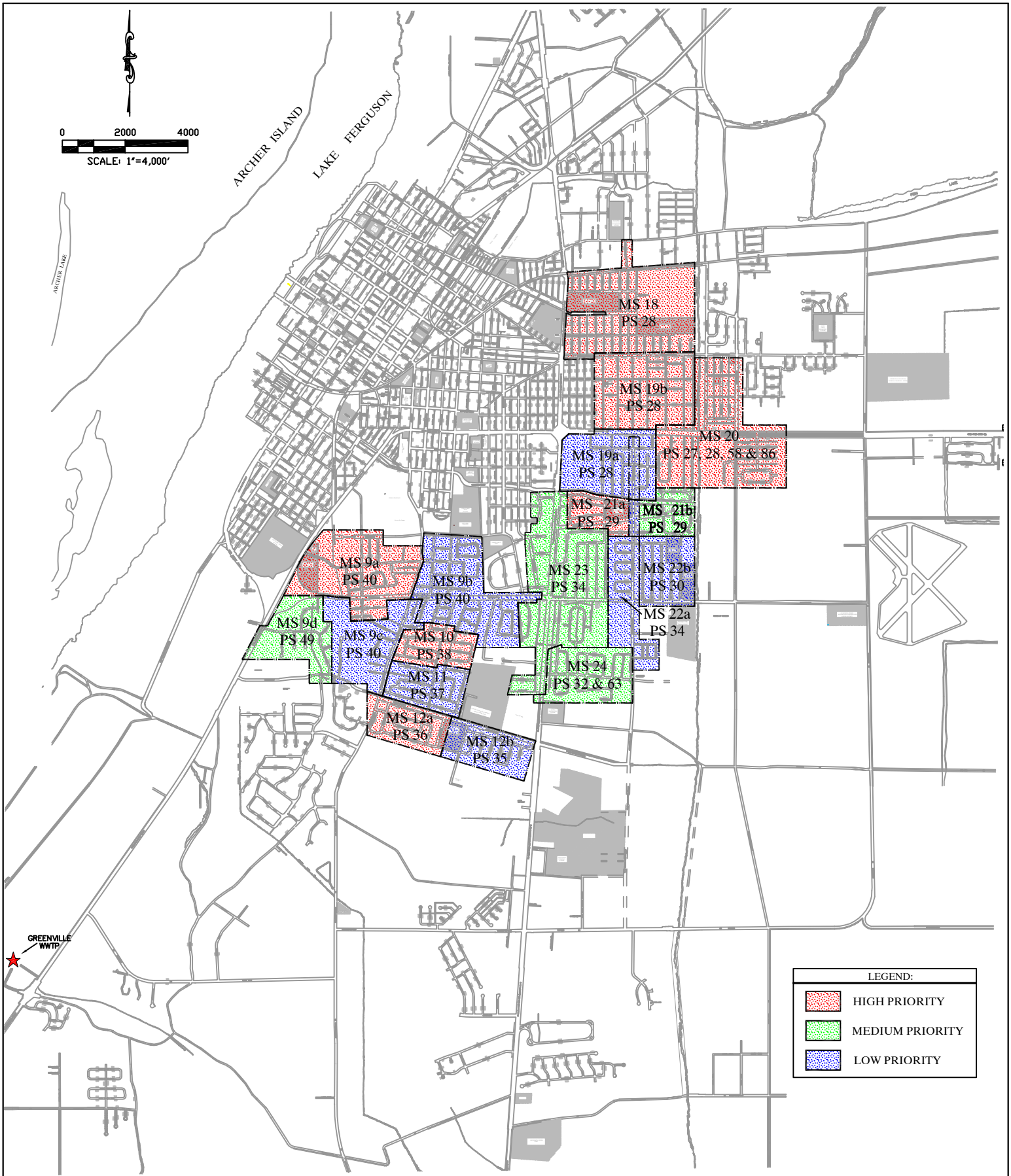
APPENDIX B

FIGURE
1

Proj. No.	02500-1-0713
CAD File No.	Sewer Basin Maps.dwg
Drawn By:	PNO
Chkd. By:	PNO
Date:	12/7/2015
Scale:	1"= 4,000'
Dwg. No.	1

FIGURE 5

DANIEL SEWER SHED MAP



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CITY OF GREENVILLE
DANIEL SEWERSHED
MINI SYSTEM LOCATION MAP
GREENVILLE, MISSISSIPPI

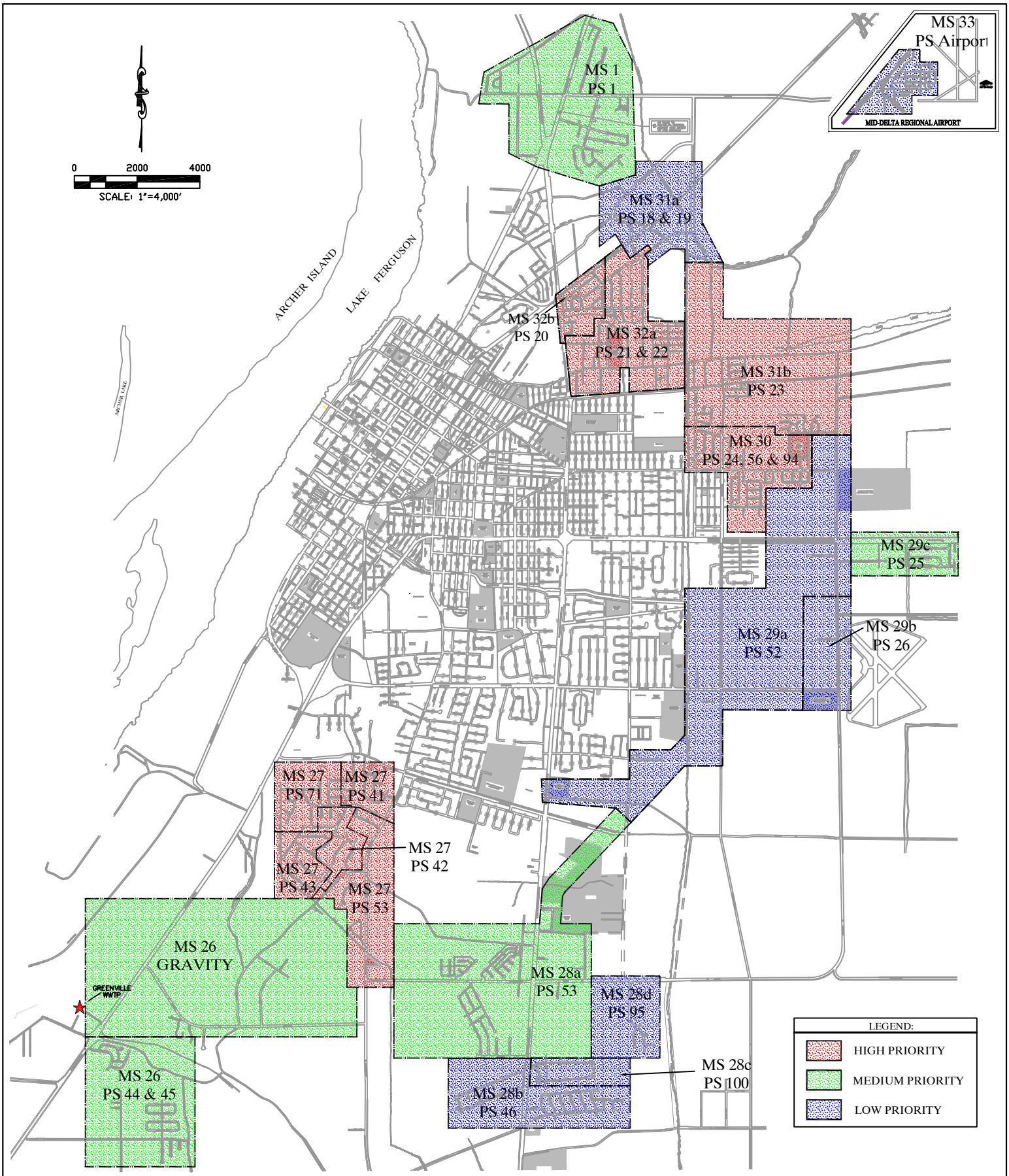
APPENDIX B

FIGURE
2

Proj. No.	02500-1-0713
CAD File No.	Sewer Basin Maps.dwg
Drawn By:	PND
Chkd. By:	PND
Date:	12/7/2015
Scale:	1"= 4,000'
Dwg. No.	2

FIGURE 6

PERIPHERAL SEWER SHED MAP



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CITY OF GREENVILLE
PERIPHERAL SEWERSHED
MINI SYSTEM LOCATION MAP
GREENVILLE, MISSISSIPPI

APPENDIX B

FIGURE
3

Proj. No.	02500-1-0713
CAD File No.	Sewer Basin Maps.dwg
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Chkd. By:	PNO
Date:	12/7/2015
Scale:	1"= 4,000'
Dwg. No.	3

FIGURE 7

MS 3-E / PS 6 MINISYSTEM MAP

Figure 7 - MS3-E/PS6 Map



Legend

- Sewer_Manholes
- Pump Station
- Sewer Lines
- Forcemain
- Mini System Boundary

540 270 0 540 Feet

N W E S

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FIGURE 8

MS 4-A/4-B // PS 7 MINISYSTEM MAP

Figure 8 - MS4-A/PS7 Map



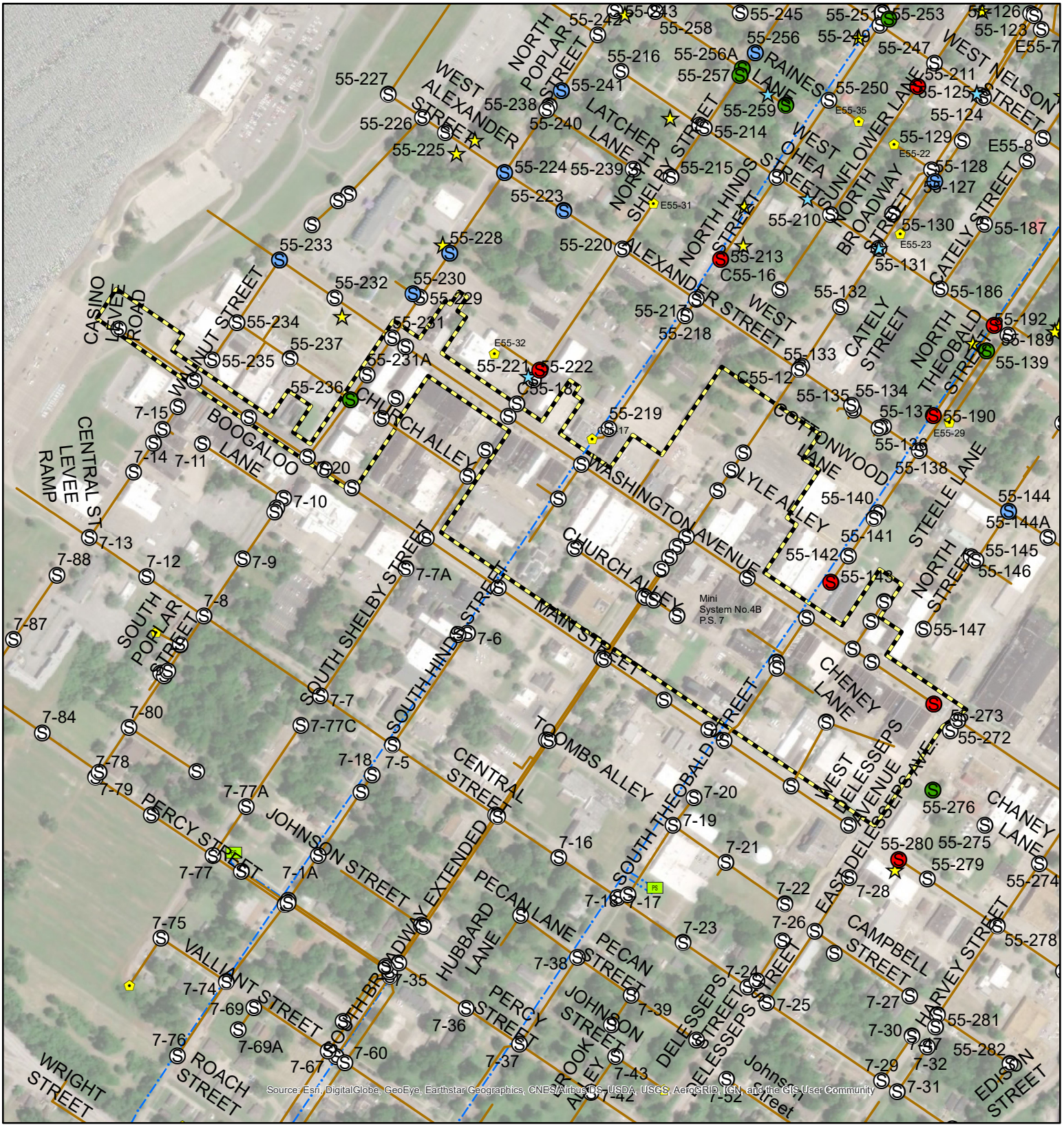
Sewer_Manholes
Pump Station
Sewer Lines
Forcemain
Mini System Boundary

1,000 500 0 1,000 Feet

N
W E
S

W.L. BURLE ENGINEERS, P.A.

Figure 8A - MS4-B/PS7 Map



Legend

- Sewer Manholes
- Pump Station
- Sewer Lines
- Forcemain
- Mini System Boundary

810 405 0 810 Feet

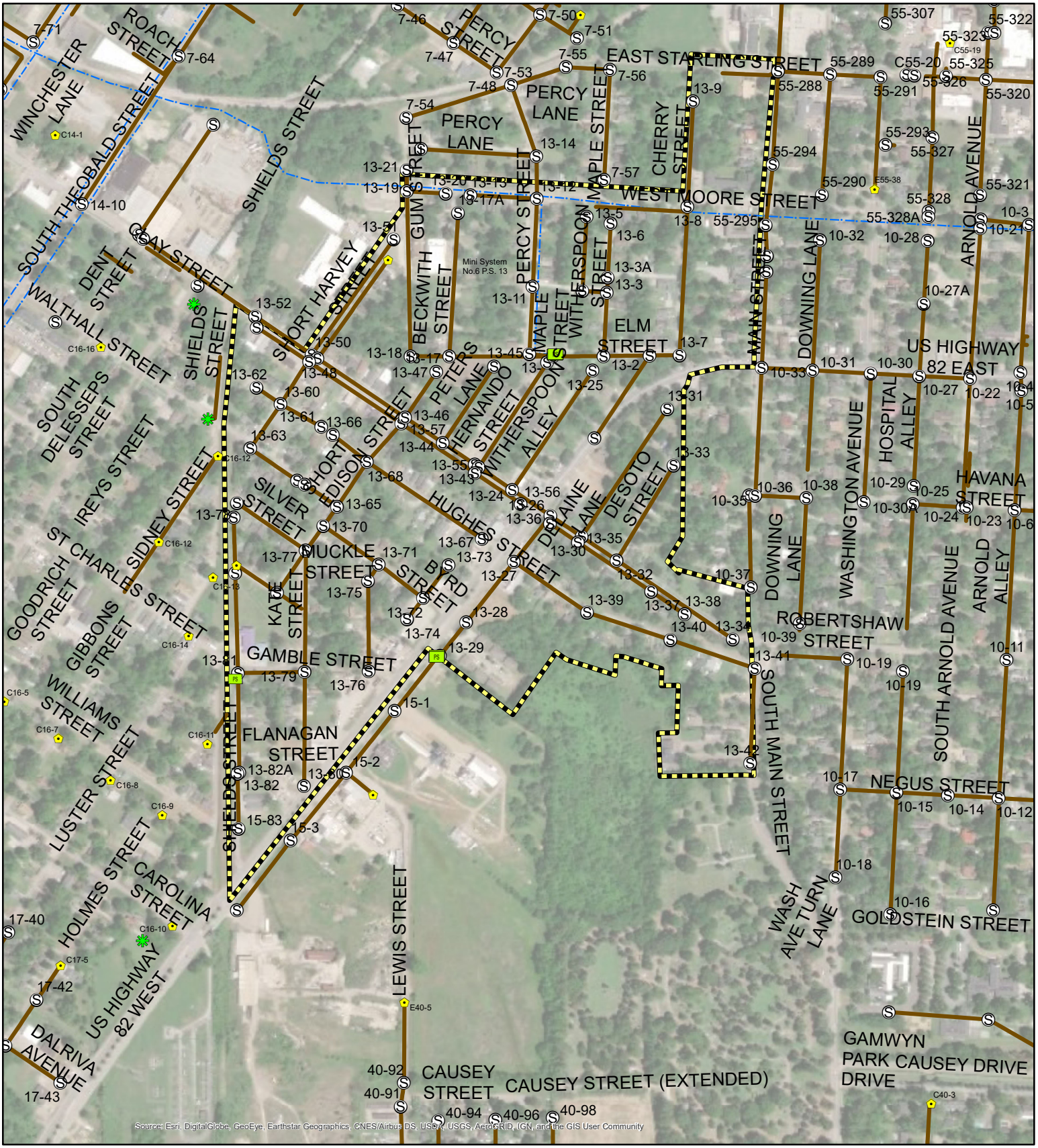
N W E S

W.L. BURLE ENGINEERS, P.A.

FIGURE 9

MS 6 / PS 13 MINISYSTEM MAP

Figure 9 - MS6/PS13 Map



Legend

- Sewer_Manholes
- Pump Station
- Sewer Lines
- Forcemain
- Mini System Boundary

950 475 0 950 Feet

N W E S

W.L. BURLE ENGINEERS, P.A.

FIGURE 10

MS 6 / PS 15 MINISYSTEM MAP

Figure 10 - MS6/PS15 Map



Legend

- Sewer_Manholes
- Pump Station
- Sewer Lines
- Forcemain
- Mini System Boundary

400 200 0 400 Feet

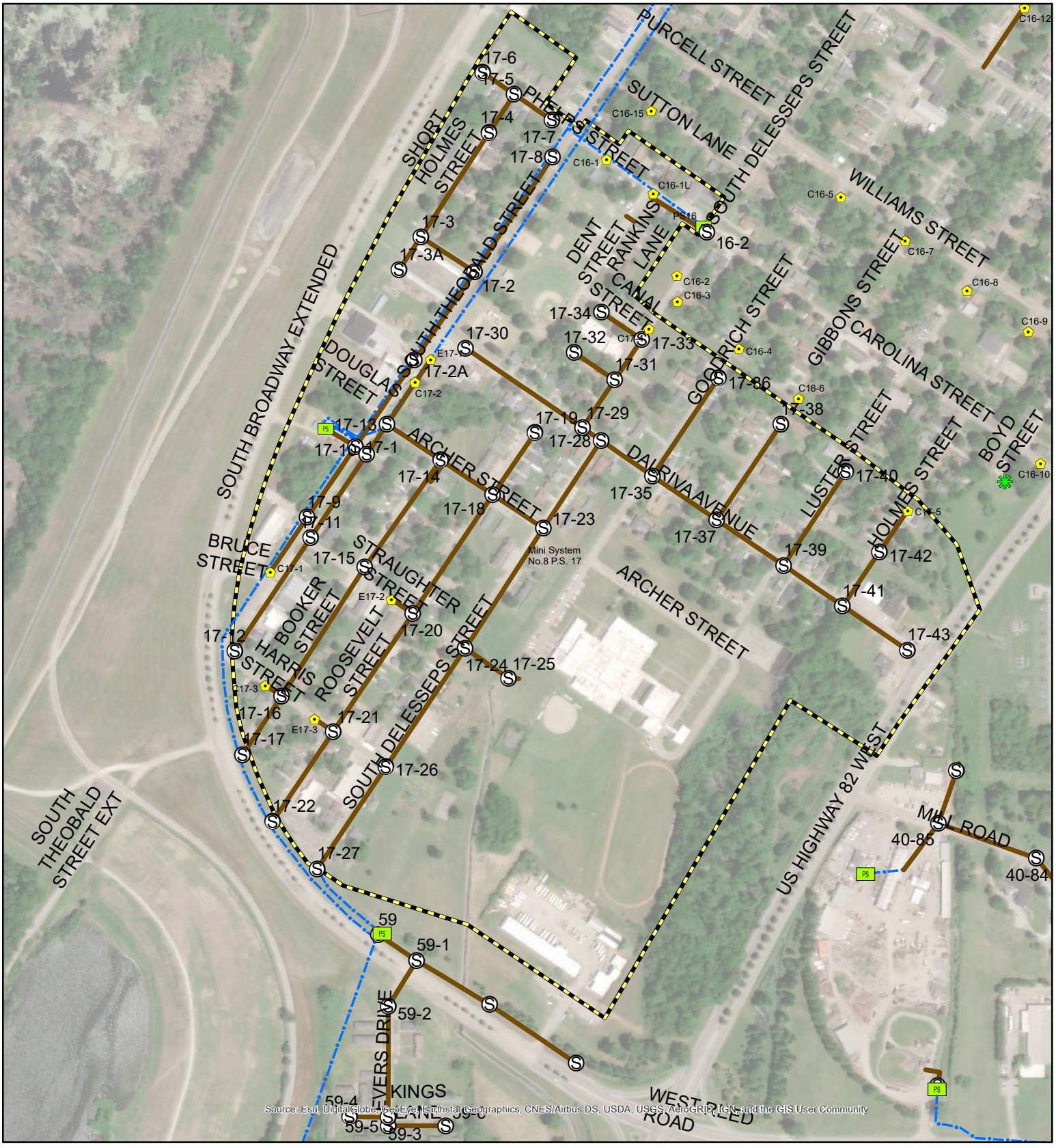
N W E S

W.L.BURLE ENGINEERS, P.A.

FIGURE 11

MS 8 / PS 17 MINISYSTEM MAP

Figure 11 - MS8/PS17 Map



Legend

- Sewer_Manholes
- Pump Station
- Sewer Lines
- Forcemain
- Mini System Boundary

810 405 0 810 Feet

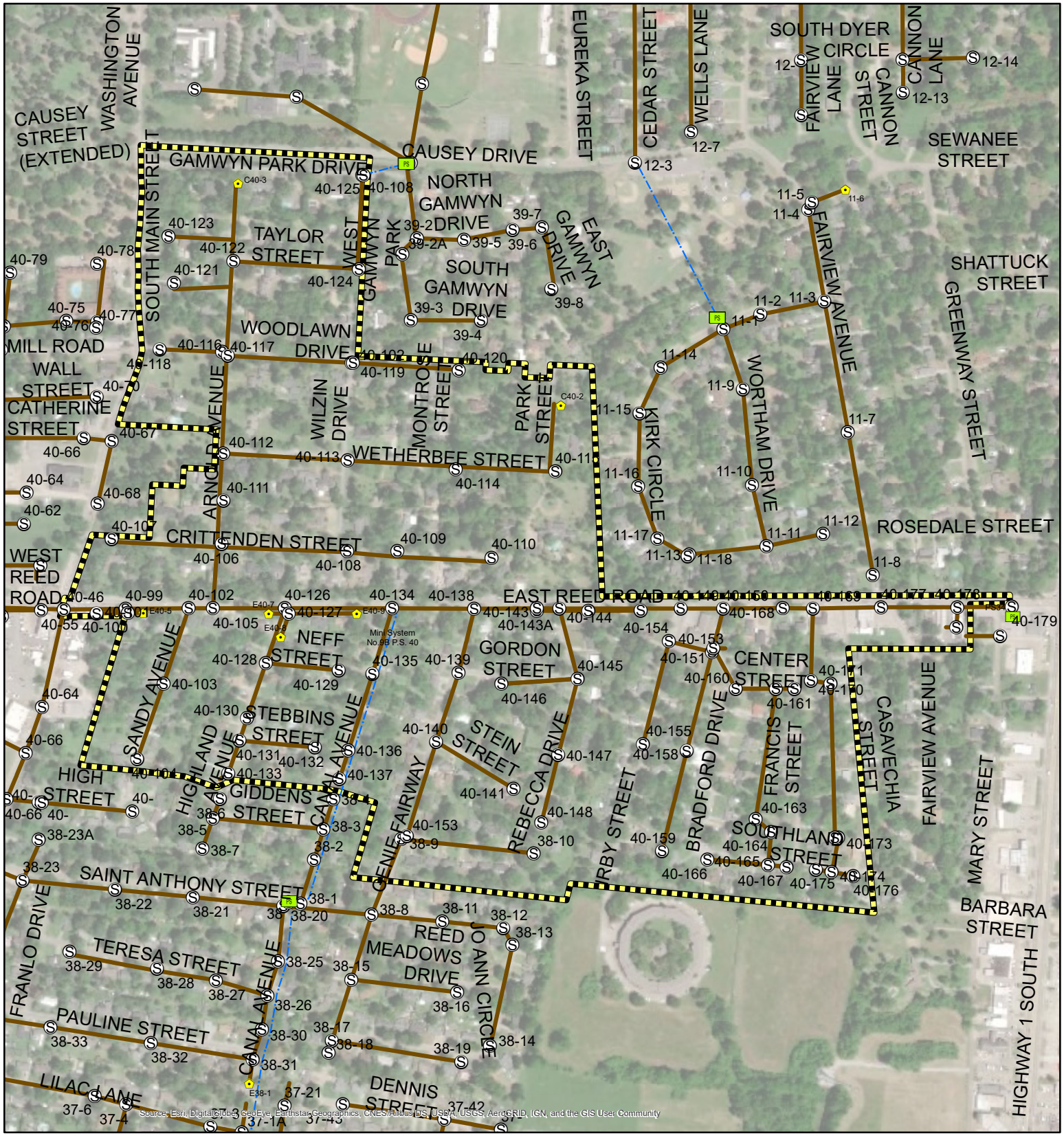
N W E S

W.L. BURLE ENGINEERS, P.A.

FIGURE 12

MS 9-B / PS 40 MINISYSTEM MAP

Figure 12 - MS9-B/PS40 Map



Legend

- Sewer_Manholes
- Pump Station
- Sewer Lines
- Forcemain
- Mini System Boundary

950 475 0 950 Feet

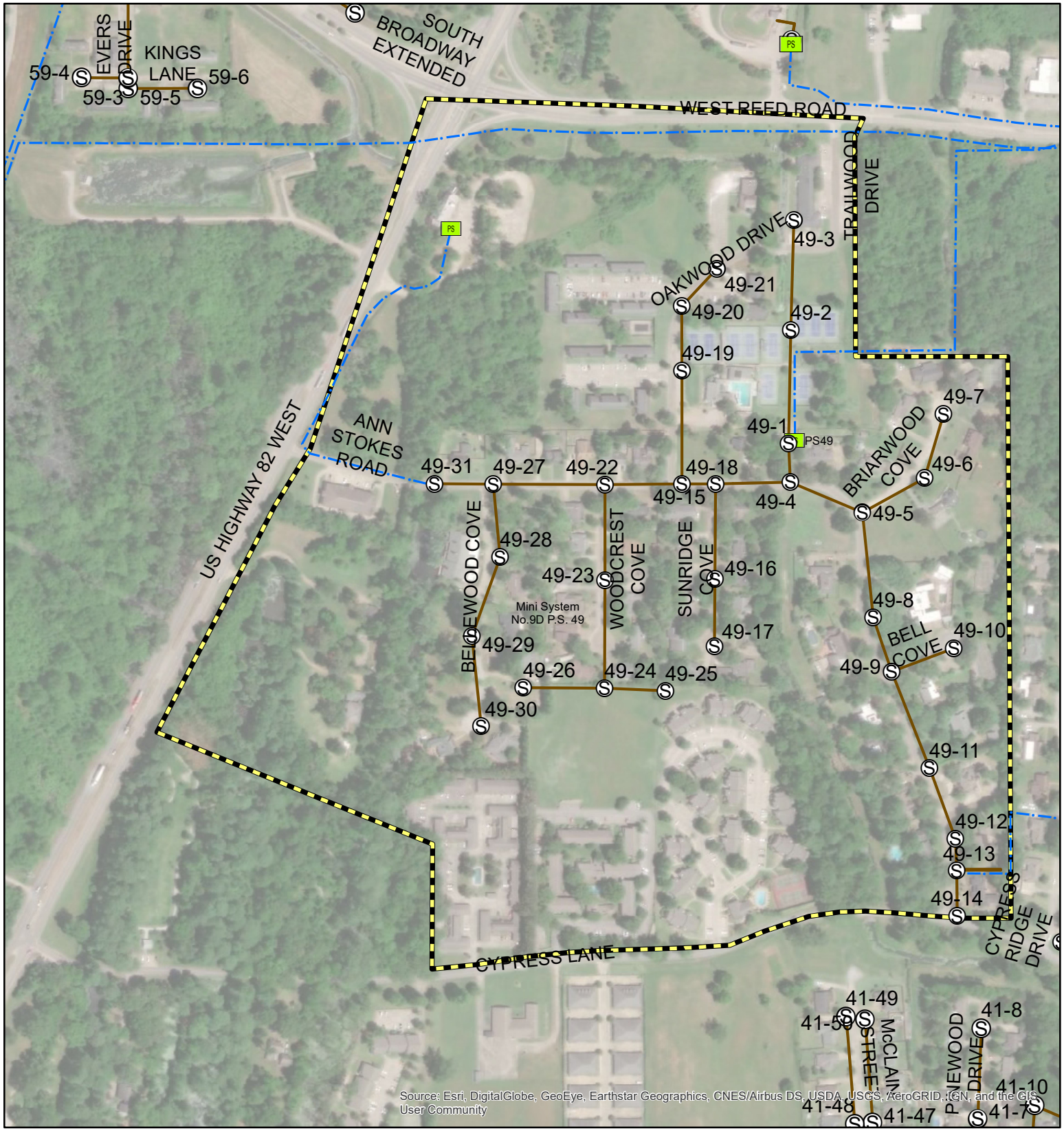
N W E S

W.L. BURLE ENGINEERS, P.A.

FIGURE 13

MS 9-D / PS 49 MINISYSTEM MAP

Figure 13 - MS9-D/PS49 Map



Legend

- Sewer Manholes
- Pump Station
- Sewer Lines
- Forcemain
- Mini System Boundary

670 335 0 670 Feet

N W E S

W.L. BURLE ENGINEERS, P.A.

FIGURE 14

MS 11 / PS 37 MINISYSTEM MAP

Figure 14 - MS11/PS37 Map



Legend

- Sewer_Manholes
- Pump Station
- Sewer Lines
- Forcemain
- Mini System Boundary

660 330 0 660 Feet

N W E S

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FIGURE 15

MS 12-B / PS 35 MINISYSTEM MAP

Figure 15 - MS12-B/PS35 Map



Legend

- Sewer_Manholes
- Pump Station
- Sewer Lines
- Forcemain
- Mini System Boundary

540 270 0 540 Feet

N W E S

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FIGURE 16

MS 14 / PS 10 MINISYSTEM MAP

Figure 16 - MS14/PS10 Map



Legend

- Sewer_Manholes
- Pump Station
- Sewer Lines
- Forcemain
- Mini System Boundary

670 335 0 670 Feet

N W E S

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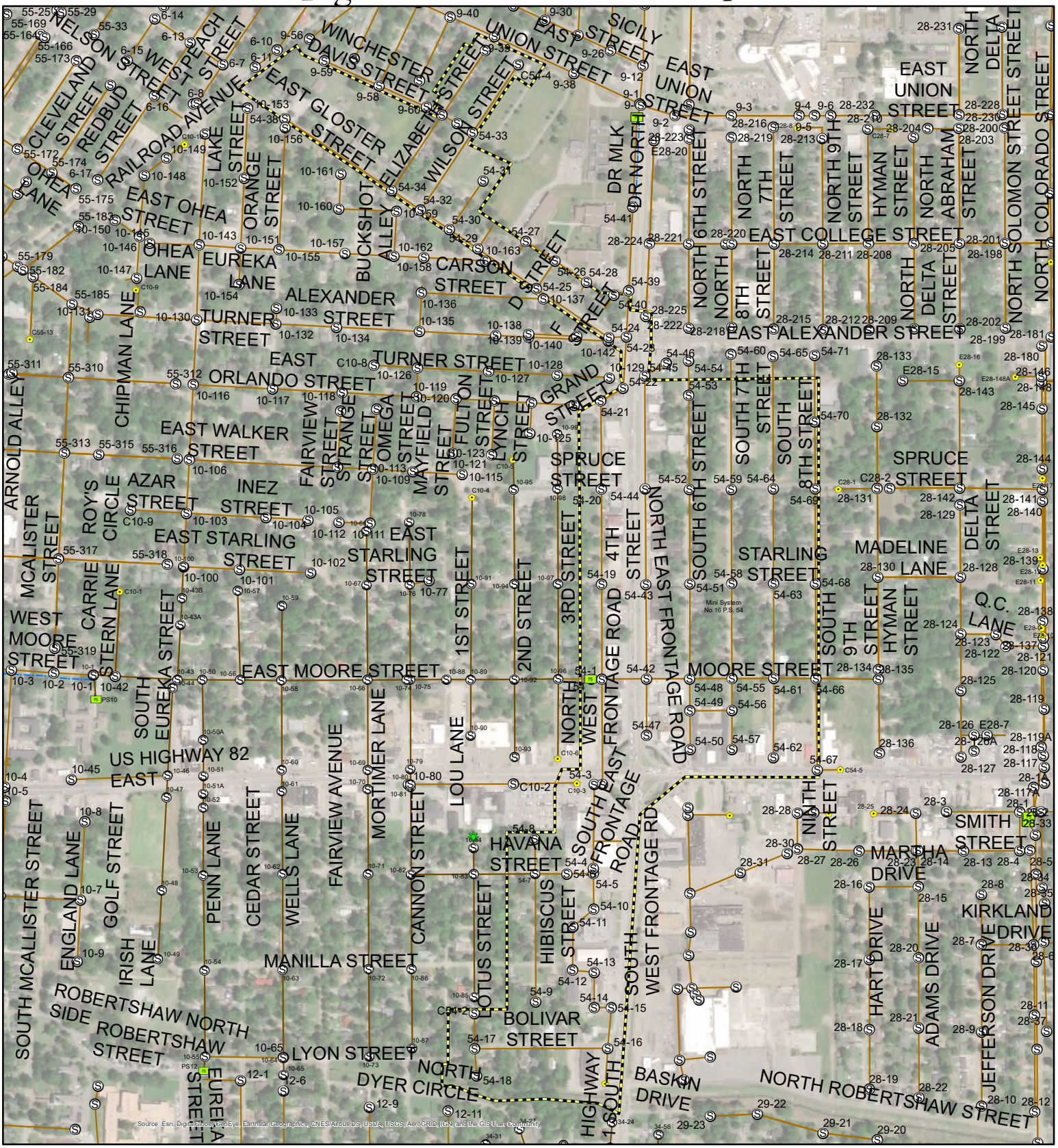
FIGURE 17

MS 16 / PS 54 MINISYSTEM MAP

Figure 17 - MS16/PS54 Map



Legend

- Sewer_Manholes
- Pump Station
- Sewer Lines
- Forcemain
- Mini System Boundary

1,100 550 0 1,100 Feet

N W E S

W.L. BURLE ENGINEERS, P.A.

FIGURE 18

MS 17 / PS 8 MINISYSTEM MAP

Figure 18 - MS17/PS8 Map



Legend

- Sewer_Manholes
- Pump Station
- Sewer Lines
- Forcemain
- Mini System Boundary

270 135 0 270 Feet

N W E S

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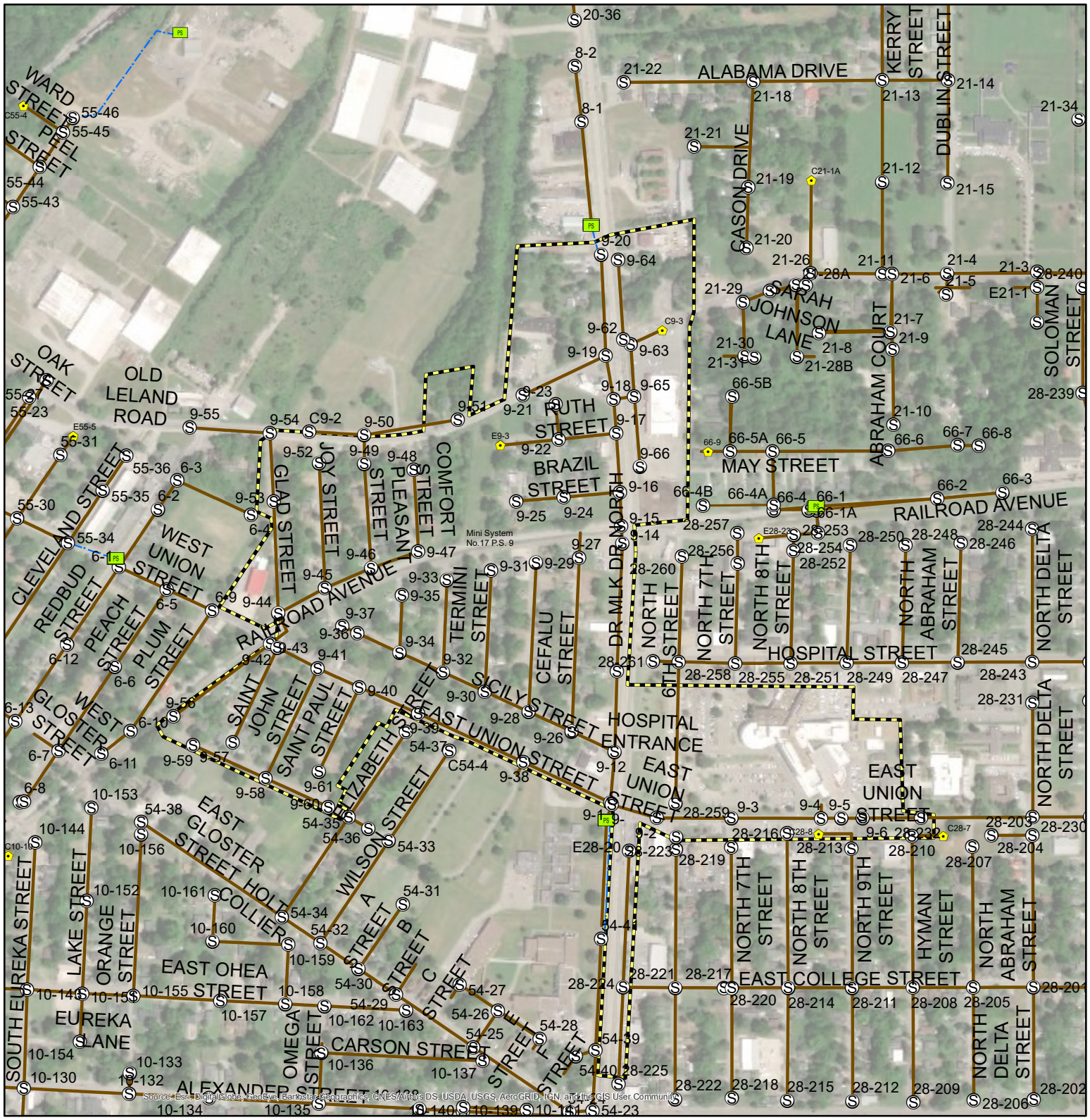
FIGURE 19

MS 17 / PS 9 MINISYSTEM MAP

Figure 19 - MS17/PS9 Map



Legend

- Sewer_Manholes
- Pump Station
- Sewer Lines
- Forcemain
- Mini System Boundary

940 470 0 940 Feet

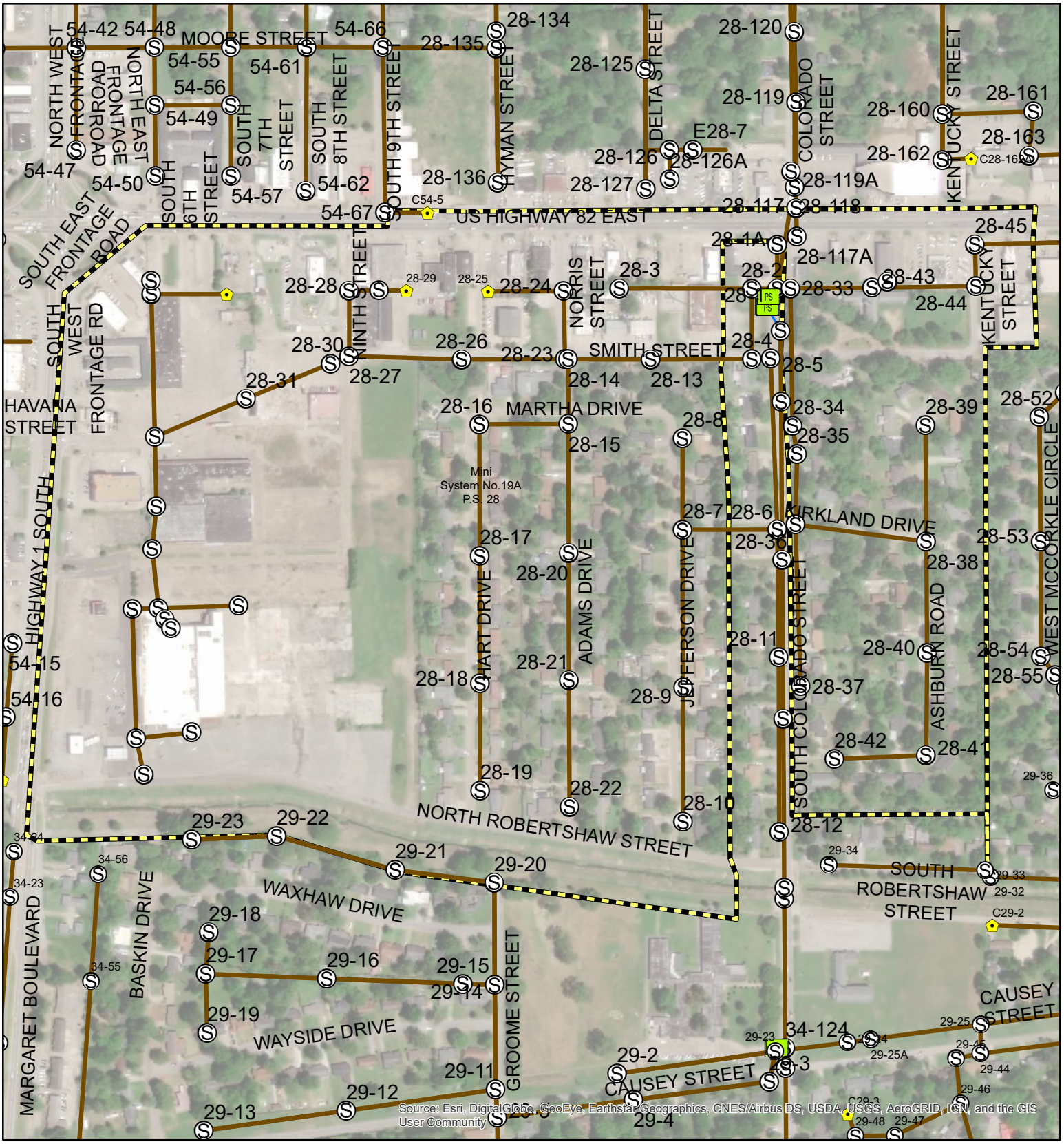
N W E S

W.L. BURLE ENGINEERS, P.A.

FIGURE 20

MS 19-A / PS 28 MINISYSTEM MAP

Figure 20 - MS19A/PS28 Map



Legend

- Sewer_Manholes
- Pump Station
- Sewer Lines
- Forcemain
- Mini System Boundary

670 335 0 670 Feet

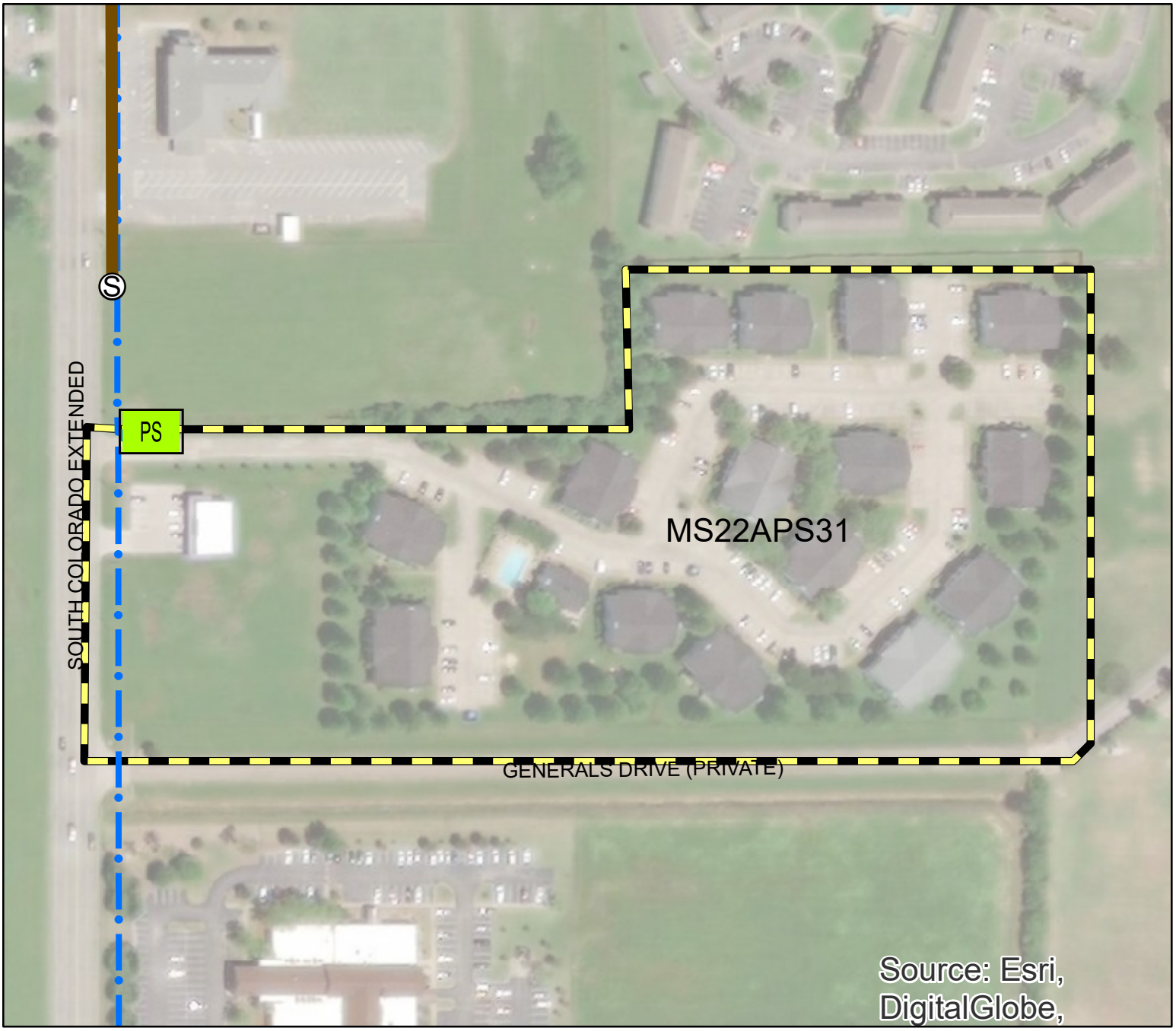
N W E S

W.L. BURLE ENGINEERS, P.A.

FIGURE 21

MS 22-A / PS 31 MINISYSTEM MAP

Figure 21 - MS22-A/PS31 Map



Legend

- Sewer_Manholes
- Pump Station
- Sewer Lines
- Forcemain
- Mini System Boundary

270 135 0 270 Feet

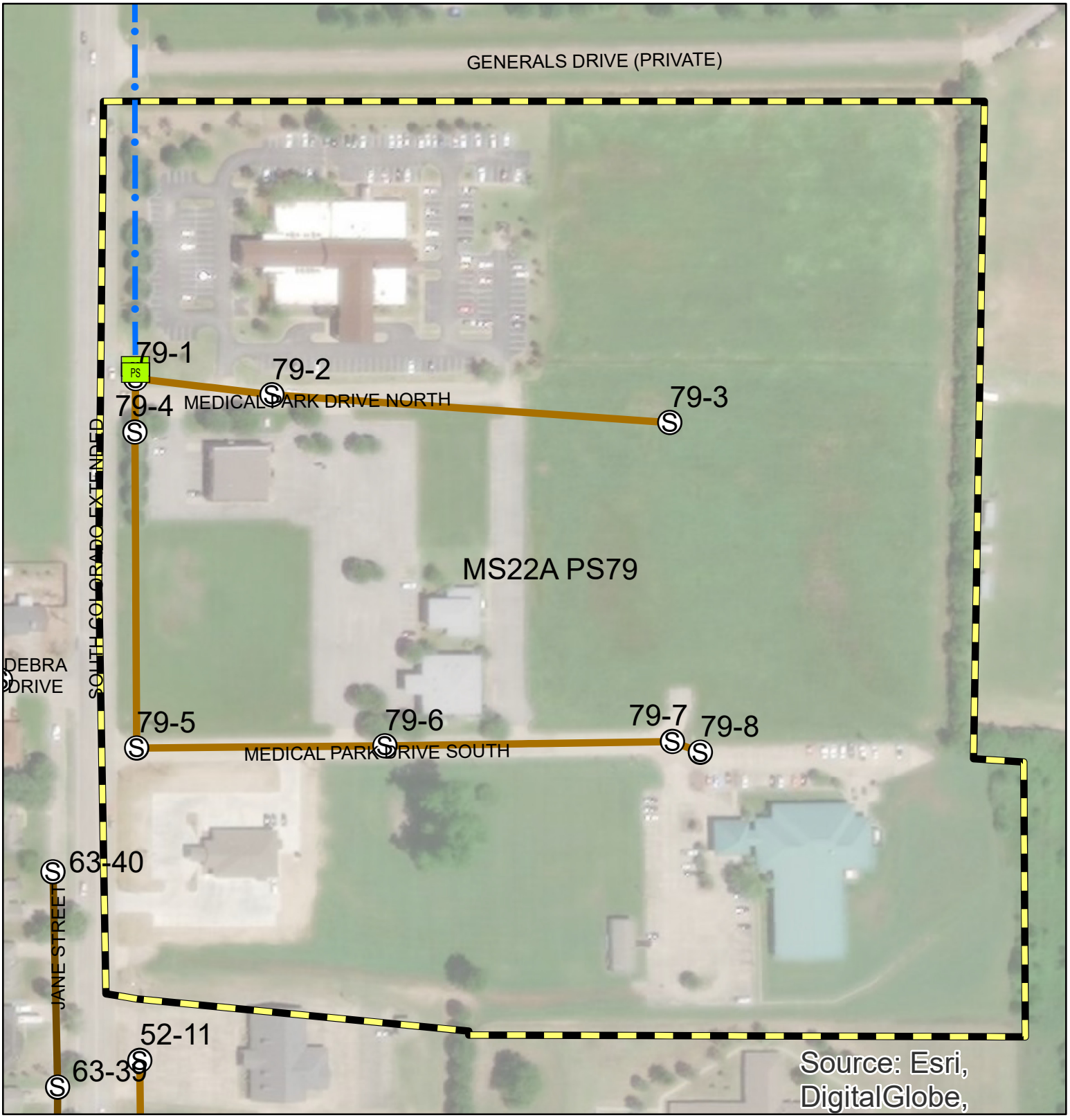
N W E S

W.L. BURLE ENGINEERS, P.A.

FIGURE 22

MS 22-A / PS 79 MINISYSTEM MAP

Figure 22 - MS22-A/PS79 MAP



Legend

- Sewer_Manholes
- Pump Station
- Sewer Lines
- Forcemain
- Mini System Boundary

270 135 0 270 Feet

N W E S

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FIGURE 23

MS 22-B / PS 30 MINISYSTEM MAP

Figure 23 - MS22-B/PS30 Map



Legend

- Sewer_Manholes
- Pump Station
- Sewer Lines
- Forcemain
- Mini System Boundary

540 270 0 540 Feet

N W E S

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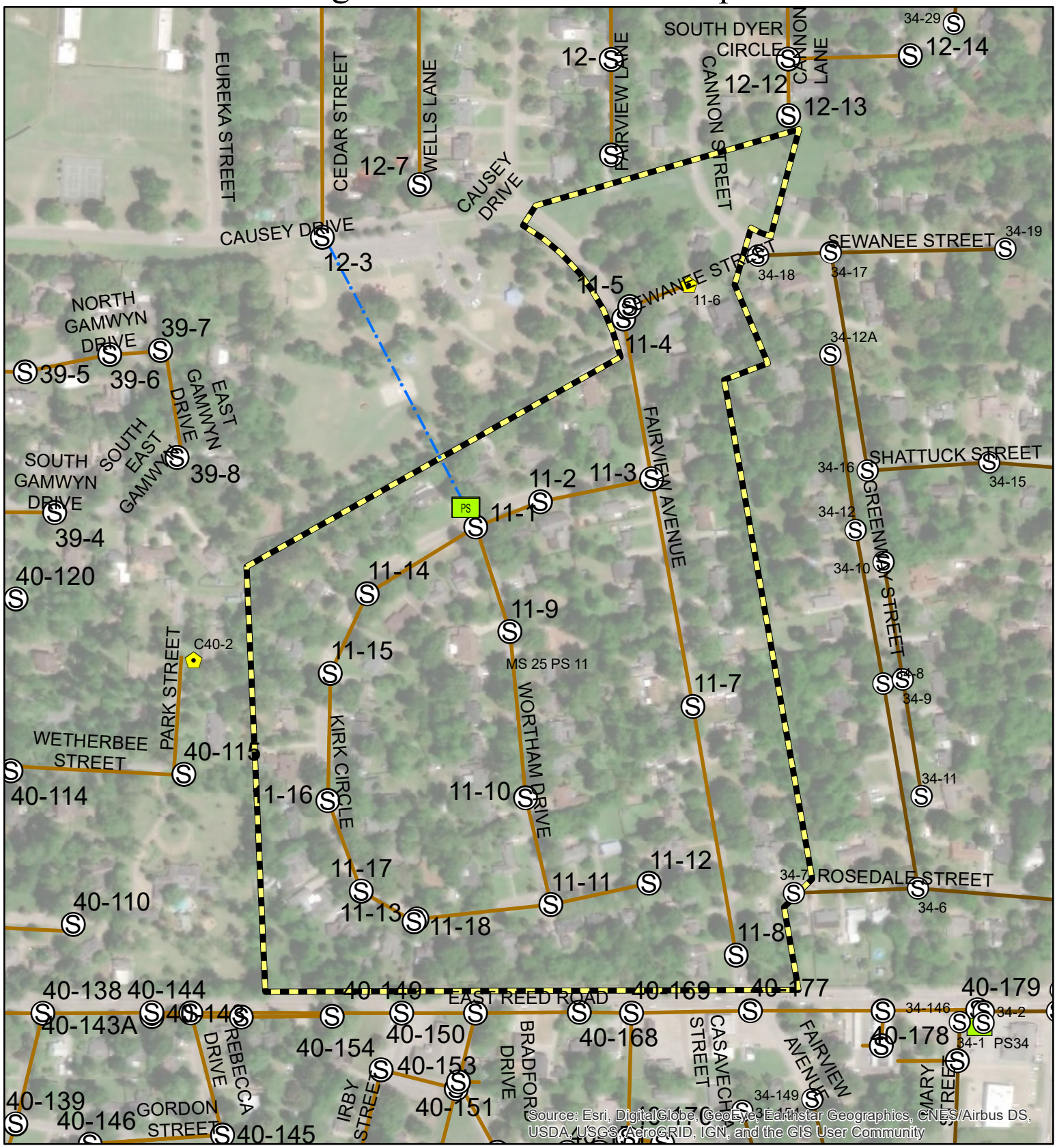
FIGURE 24

MS 25 / PS 11 MINISYSTEM MAP

Figure 24 - MS25/PS11 Map



Legend

- Sewer_Manholes
- Pump Station
- Sewer Lines
- Forcemain
- Mini System Boundary

540 270 0 540 Feet

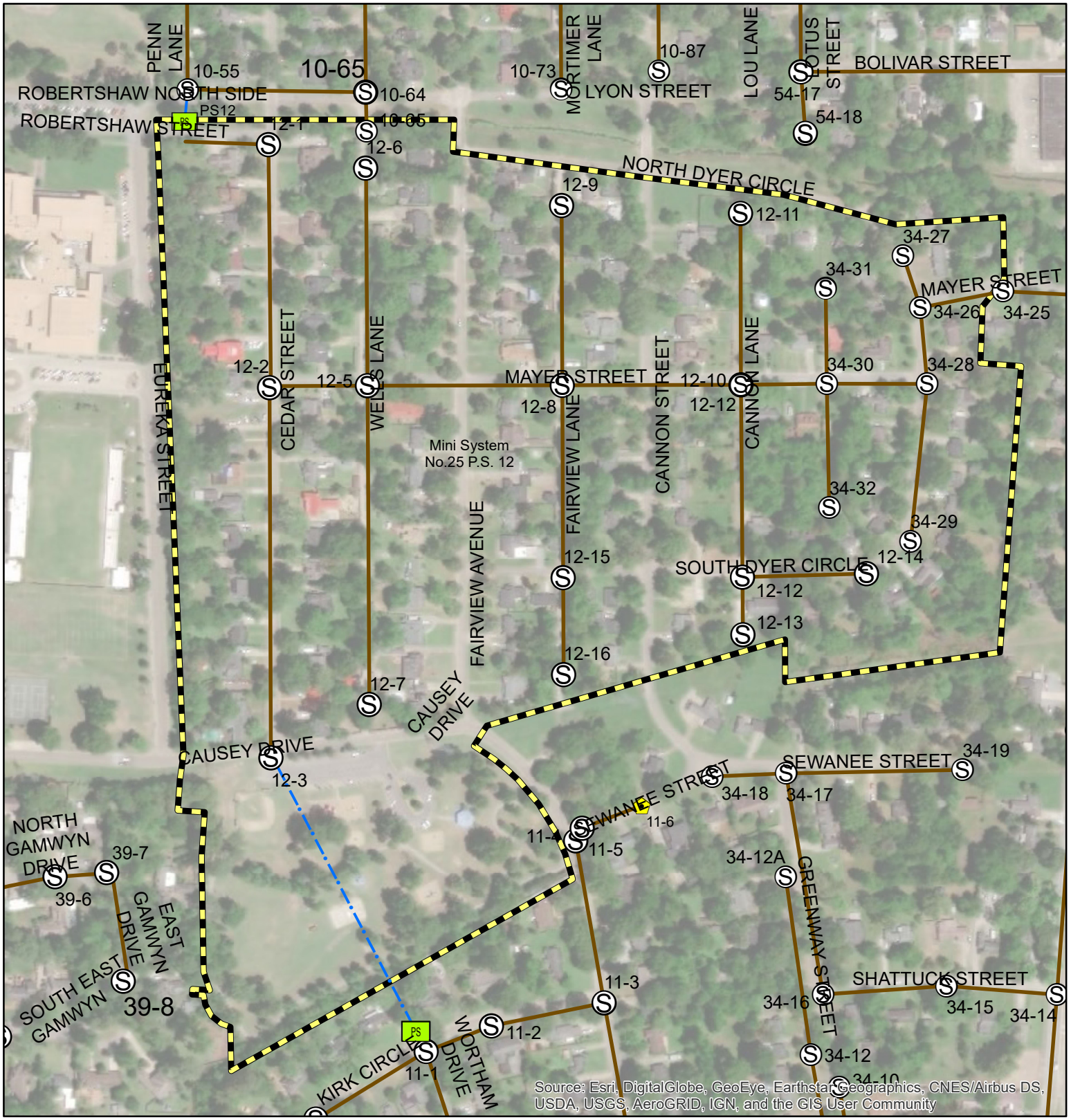
N W E S

W.L. BURLE ENGINEERS, P.A.

FIGURE 25

MS 25 / PS 12 MINISYSTEM MAP

Figure 25 - MS25/PS12 Map



Legend

- Sewer Manholes
- Pump Station
- Sewer Lines
- Forcemain
- Mini System Boundary

540 270 0 540 Feet

N W E S

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FIGURE 26

MS 28-A / PS 46 MINISYSTEM MAP

Figure 26 - MS28-B/PS46 Map



Legend

- Sewer_Manholes
- Pump Station
- Sewer Lines
- Forcemain
- Mini System Boundary

800 400 0 800 Feet

N W E S

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FIGURE 27

MS 28-B / PS 70 MINISYSTEM MAP

Figure 27 - MS28B/PS70 Map



Legend

- Sewer Manholes
- Pump Station
- Sewer Lines
- Forcemain
- Mini System System

590 295 0 590 Feet

N W E S

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FIGURE 28

MS 28-C / PS 100 MINISYSTEM MAP

Figure 28 - MS28-C/PS100 Map



Legend

- Sewer_Manholes
- Pump Station
- Sewer Lines
- Forcemain
- Mini System Boundary

670 335 0 670 Feet

N W E S

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FIGURE 29

MS 28-D / PS 95 MINISYSTEM MAP

Figure 29 - MS28-D/PS95 Map



Legend

- Sewer Manholes
- Pump Station
- Sewer Lines
- Forcemain
- Mini System Boundary

540 270 0 540 Feet

N W E S

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FIGURE 30

MS 29 / PS 52 MINISYSTEM MAP

Figure 30 - MS29/PS52 Map

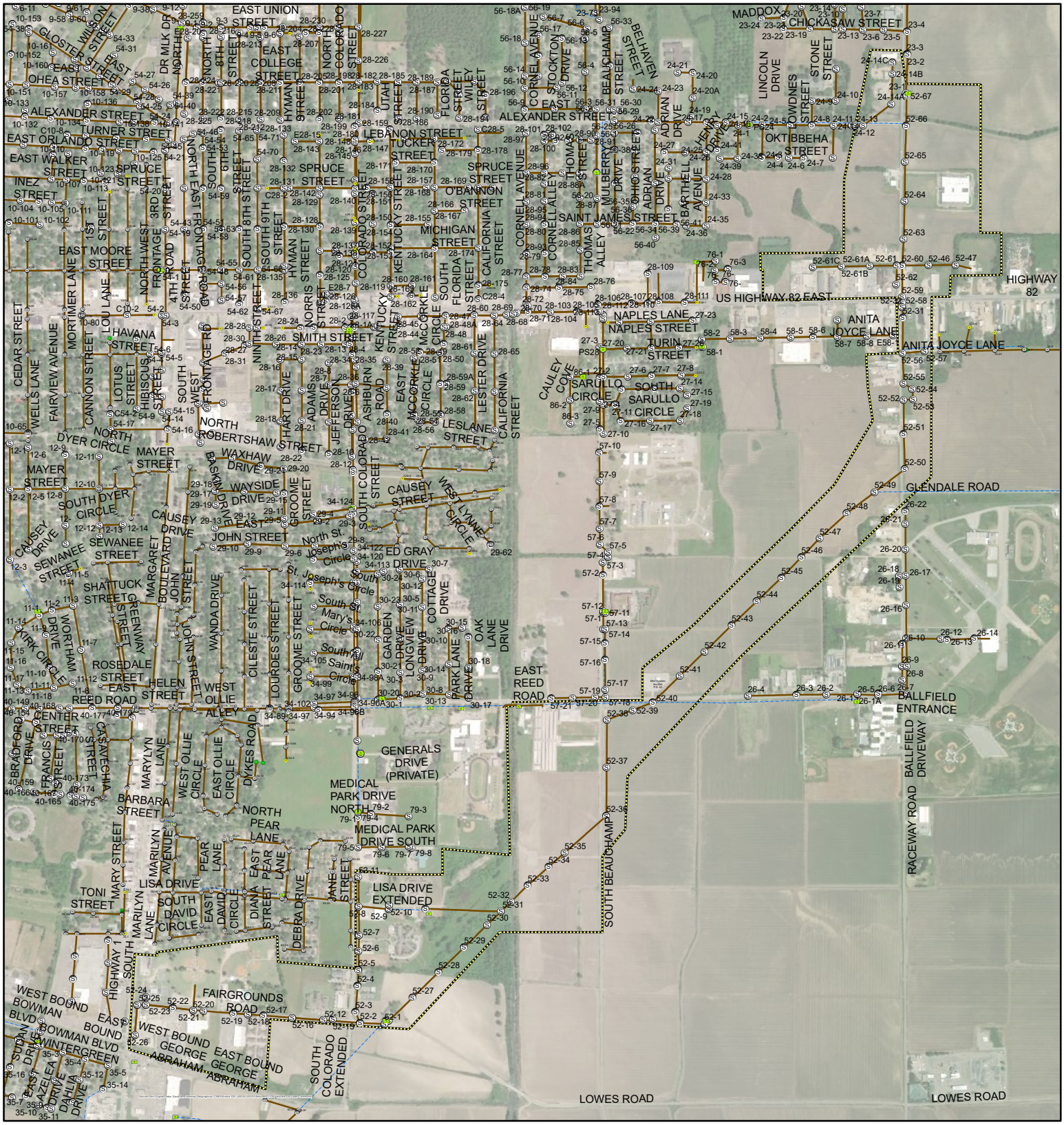
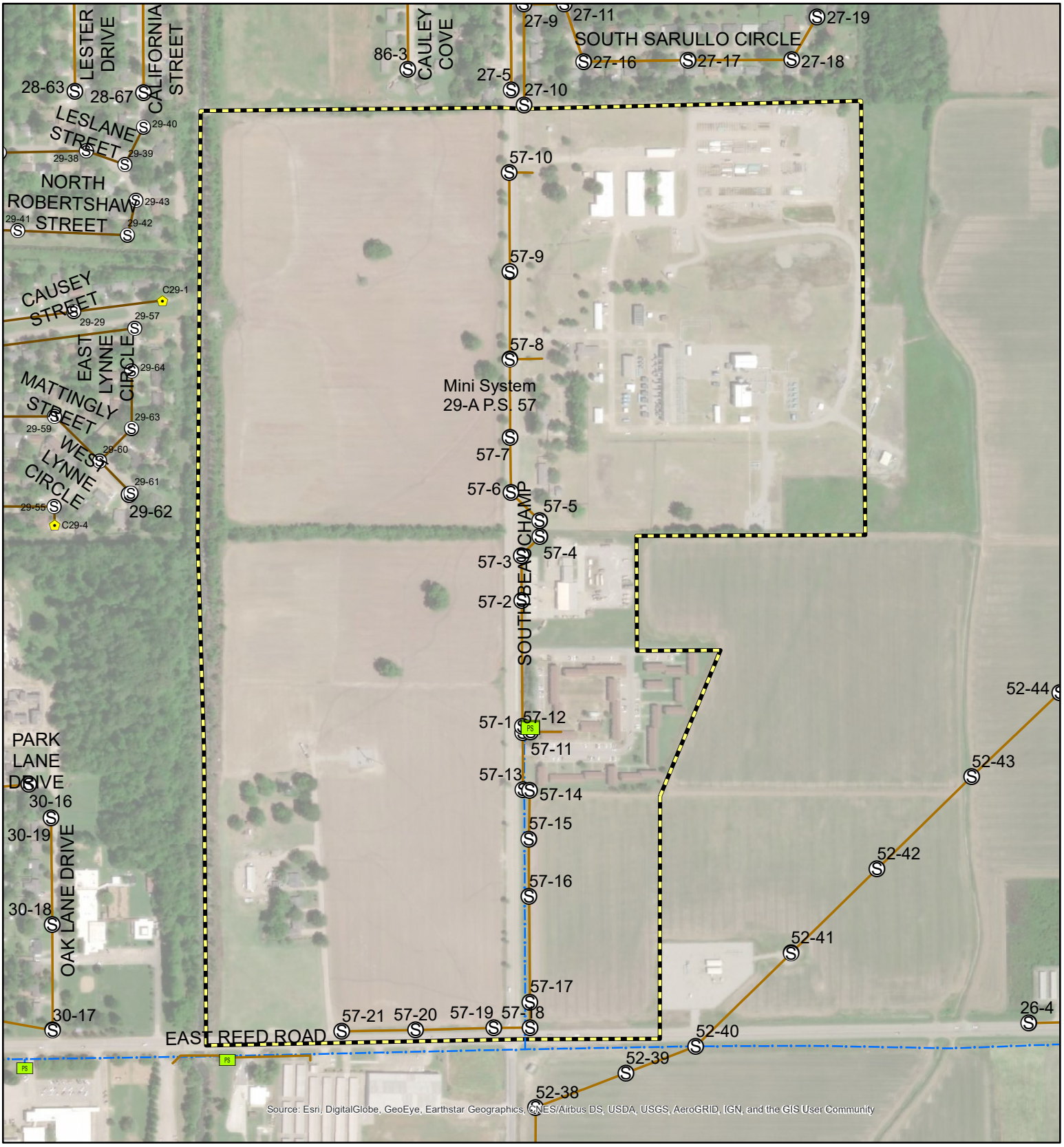


FIGURE 31

MS 29-A / PS 57 MINISYSTEM MAP

Figure 31 - MS29-A/PS57 Map



Legend

- Sewer_Manholes
- Pump Station
- Sewer Lines
- Forcemain
- Mini System Boundary

810 405 0 810 Feet

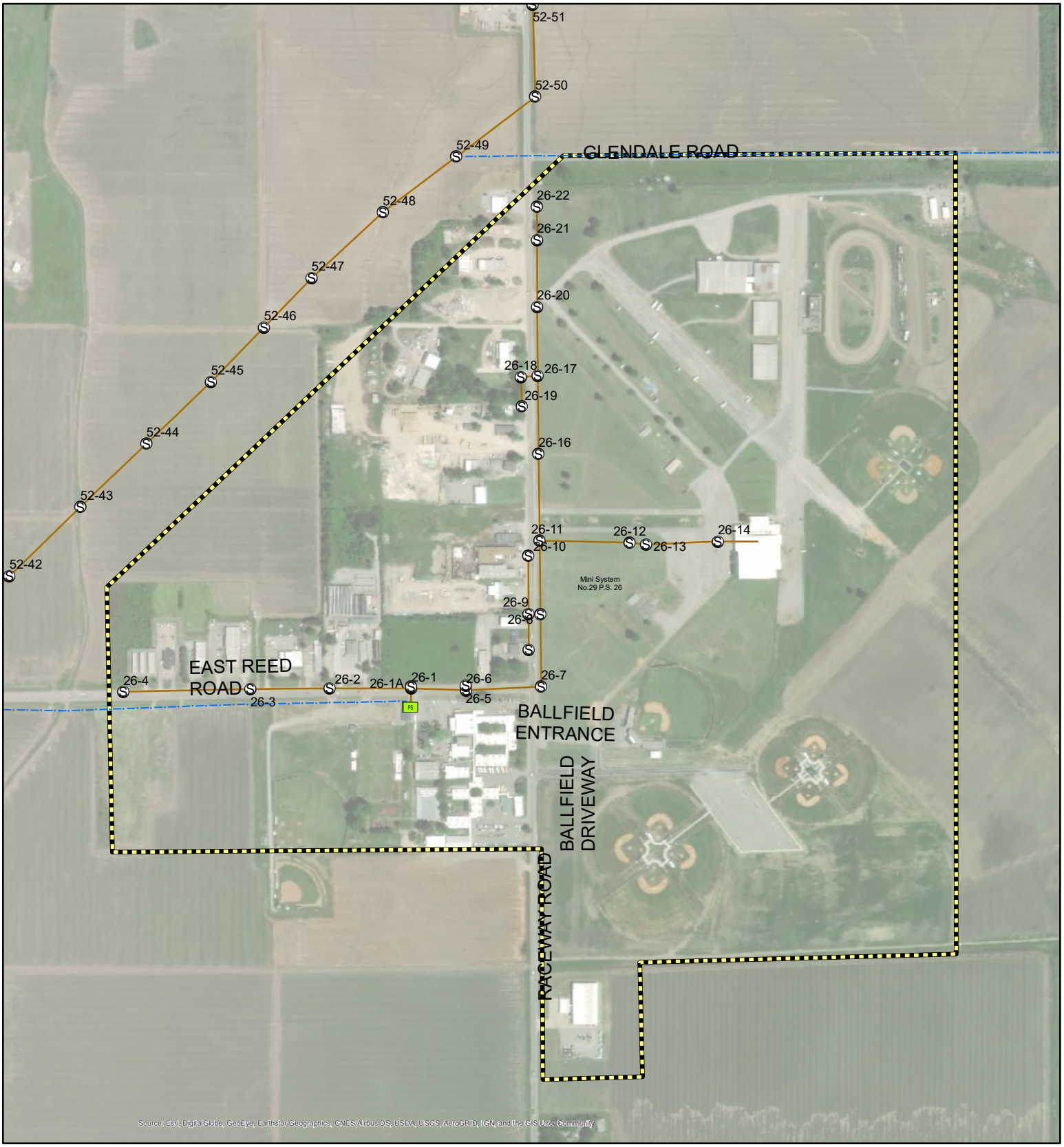
N W E S

W.L. BURLE ENGINEERS, P.A.

FIGURE 32

MS 29-B / PS 26 MINISYSTEM MAP

Figure 32 - MS29-B/PS26 Map



Legend

- Sewer Manholes
- Pump Station
- Sewer Lines
- Forcemain
- Mini System Boundary

1,000 500 0 1,000 Feet

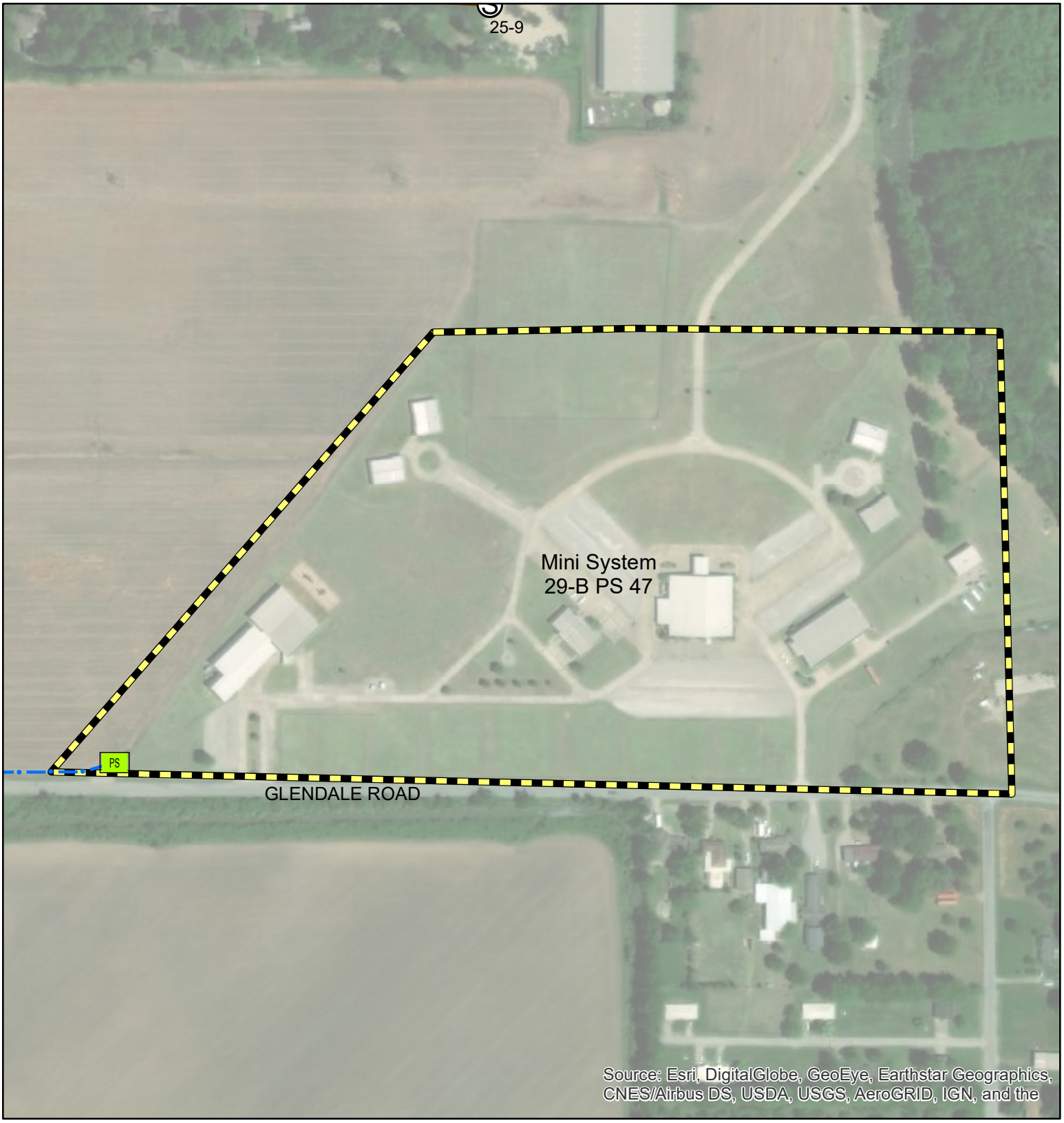
N
W E
S

W.L.BURLE ENGINEERS, P.A.

FIGURE 33

MS 29-B / PS 47 MINISYSTEM MAP

Figure 33 - MS 29-B/PS47 Map



Legend

- Sewer Manholes
- Pump Station
- Sewer Lines
- Forcemain
- Mini System Boundary

460 230 0 460 Feet

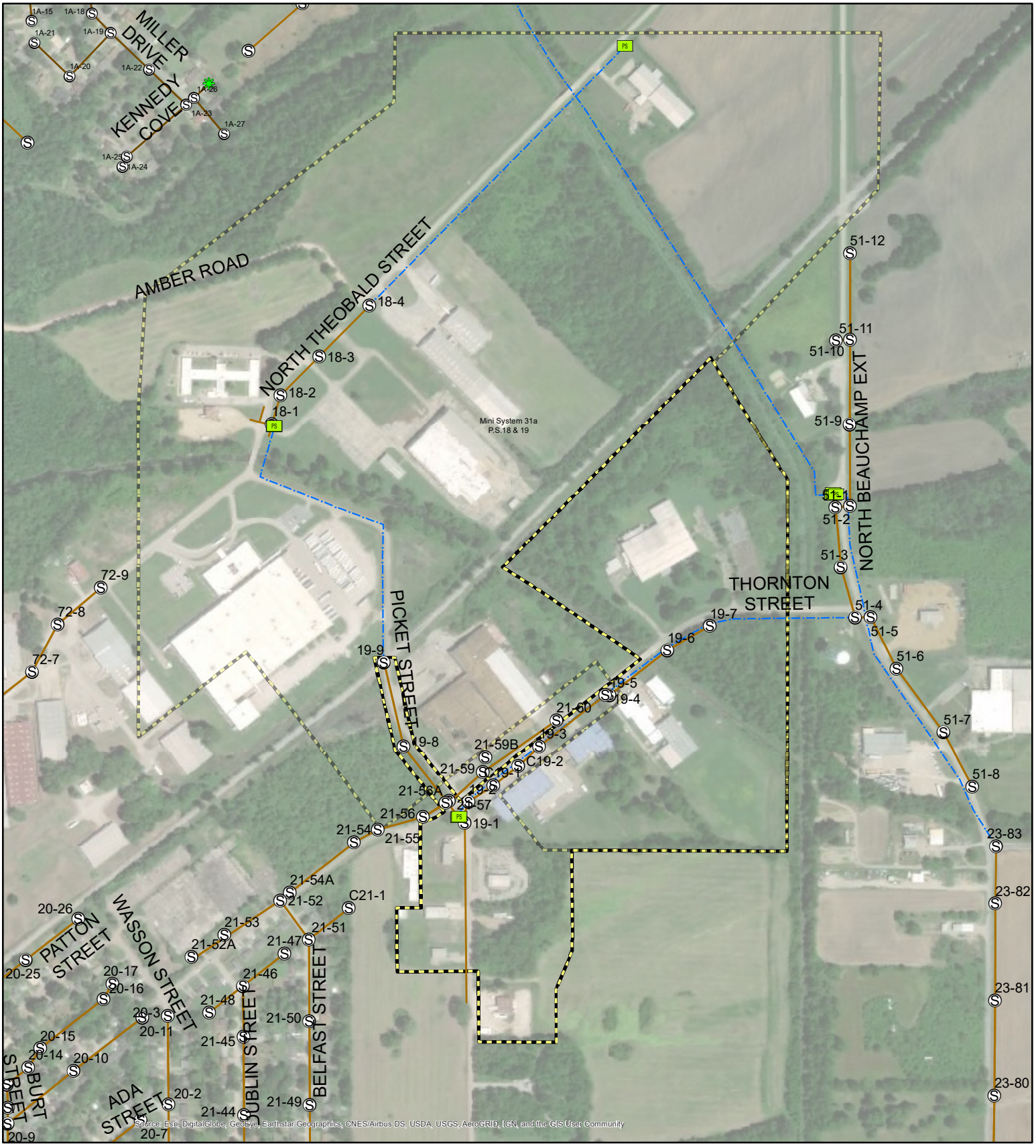
N W E S

W.L. BURLE ENGINEERS, P.A.

FIGURE 34

MS 31-A / PS 19 MINISYSTEM MAP

Figure 29 - MS 31-A / PS 18/19



975 487.5 0 975 Feet

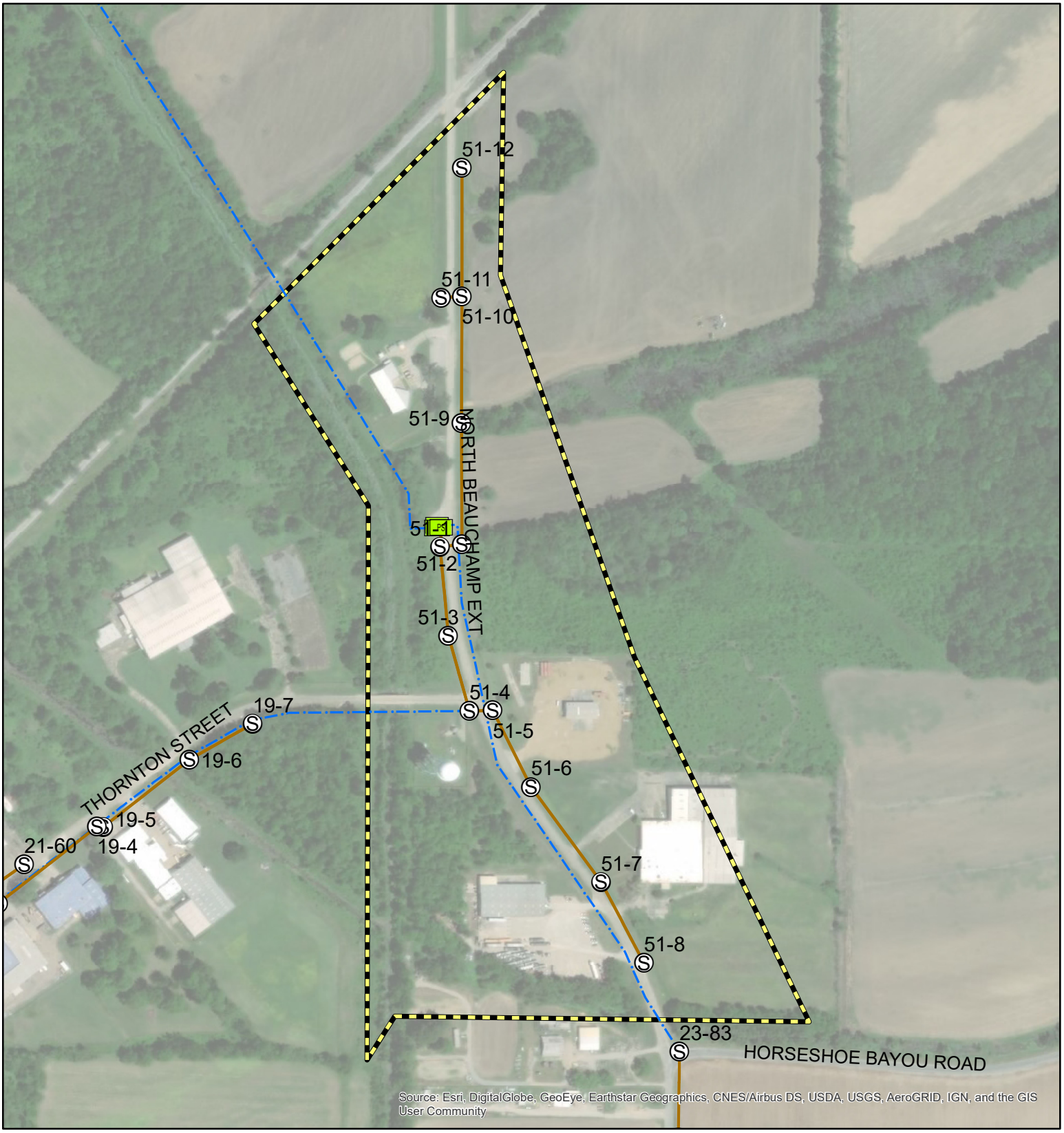
N
W E
S

W.L.BURLE ENGINEERS, P.A.

FIGURE 35

MS 31-B / PS 51 MINISYSTEM MAP

Figure 35 - MS31A/PS51 Map



Legend

- Sewer Manholes
- Pump Station
- Sewer Lines
- Forcemain
- Mini System Boundary

670 335 0 670 Feet

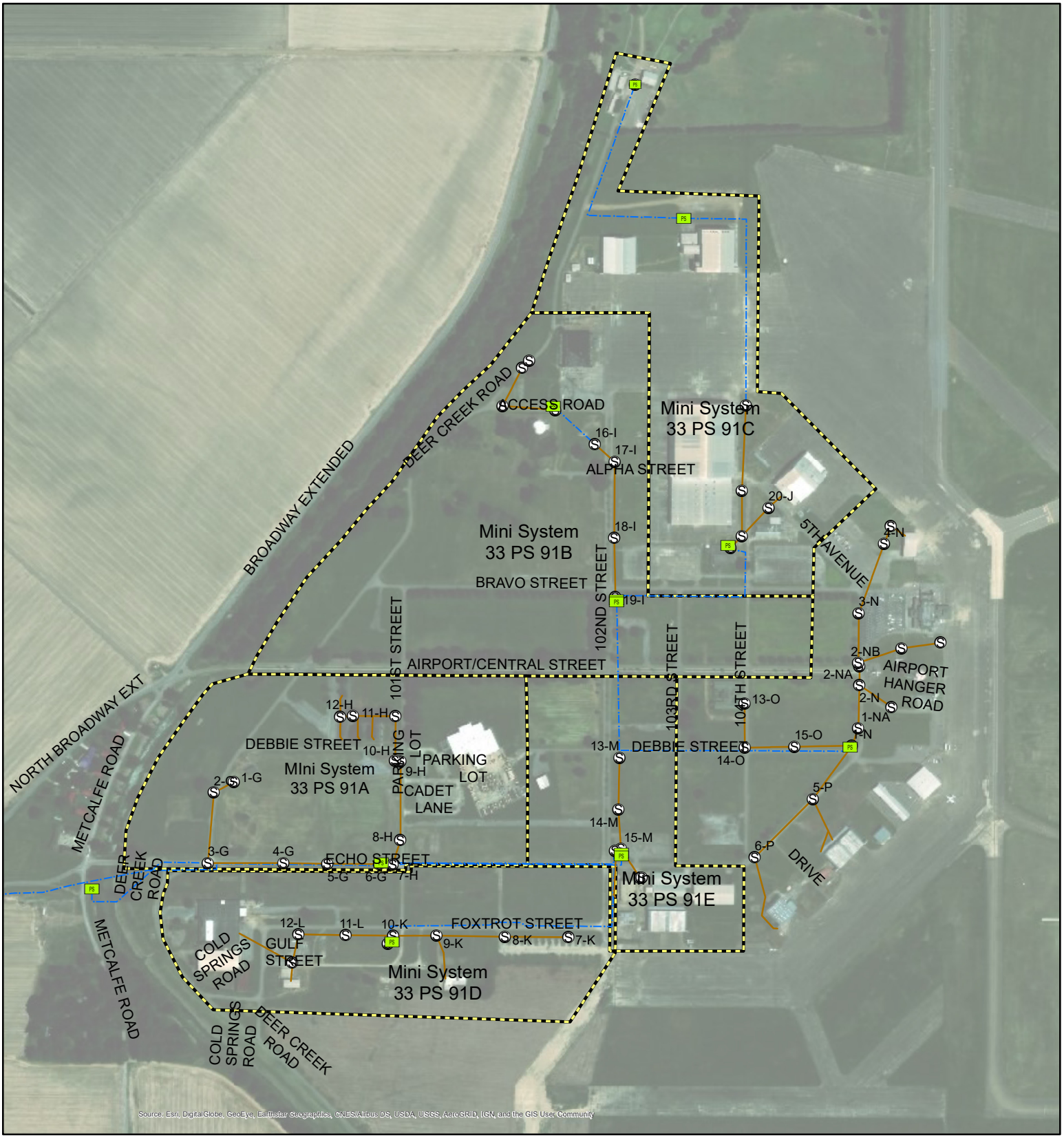
N W E S

W.L. BURLE ENGINEERS, P.A.

FIGURE 36

MS 33 / PS 91-E MINISYSTEM MAP

Figure 36 - MS33/PS91-E Map



Legend

- Sewer Manholes
- Pump Station
- Sewer Lines
- Forcemain
- Mini System Boundary

1,000 500 0 1,000 Feet

N W E S

W.L. BURLE ENGINEERS, P.A.

FIGURE 37

MS 33 / PS 91-F MINISYSTEM MAP

Figure 37 - MS33/PS91-F Map



Legend

- Sewer Manholes
- Pump Station
- Sewer Lines
- Forcemain
- Mini System Boundary

540 270 0 540 Feet

N W E S

W.L. BURLE ENGINEERS, P.A.

TABLE 1
MINI-SYSTEM MATRIX

TABLE 1

GROUP 3

MINISYSTEM MATRIX

MiniSystem	Pump Station	Inflow GPD/IDM	Infiltration GPD/IDM	Baseflow GPD	Inflow GPD	Infiltration GPD	Total Linear Feet of Sewer	Total Active Accounts	Sewer Basin Approximate Area(Acres)	Total Sewer Calls	SSO's	Year Installed	Pipe Material	Notes	SSES Priority	Total Population in Minisystem	Total I & I per capita	Map Figure Number	I & I Worksheet Appendix Number	Chart Appendix Number
3-E	6	7,970.75	7,219.58	11,357.14	81,857.14	74,142.86	7,693	61	30	1	0	1900	Vitrified Clay		6	158	987	7	1	2
4-A, 4-B	7	3,847.29	7,481.83	274,571.43	400,428.57	778,714.29	84,856	300	245	20	3	1900	Vitrified Clay		14	777	1,518	8, 8A	3	4
6	13	9,348.90	1,888.56	47,142.86	497,857.14	100,571.43	39,766	273	129	12	0	1950	Concrete		4	707	846	9	5	6
6	15						2,361		44	5	0	1957	Concrete	Data not consistent or complete	30			10	7	8
8	17	4,913.38	11,301.17	451,785.71	144,001.14	331,214.29	23,404	177	147	0	1	1956	Concrete		11	458	1,037	11	9	10
9-B	40	2,856.83	1,095.74	74,542.86	393,800.00	151,042.86	91,887	738	430	30	4	1950	Concrete	Includes MS9A, MS9B, MS9C	19	1911	285	12	11	12
9-D	49	2,220.45	957.02	158,571.43	41,928.57	18,071.43	16,580	82	109	0	0	1973	Concrete	Stokes Subd.	22	212	283	13	13	14
11	37	185.57	1,776.89	7,200.00	6,528.57	62,514.29	31,865	250	83	13	3	1967	Concrete		29	648	107	14	15	16
12-B	35	3,494.76	1,250.73	174,214.29	88,642.86	19,571.43	15,276	130	50	3	1	1962	Concrete		18	337	321	15	17	18
14	10	3,514.51	3,432.19	306,785.71	445,214.29	434,785.71	98,668	840	412	24	1	1930	Vitrified Clay/Concrete	Includes MS13, MS14, MS15	17	2176	404	16	19	20
16	54	5,662.45	3,872.68	169,142.86	245,500.00	237,285.71	32,368	249	114	8	2	1948	Concrete		10	645	749	17	21	22
17	8						685	4	7	2	0	1962	Concrete	On Bypass during study period	31			18	23	24
17	9	4,463.94	2,670.55	55,785.71	138,857.14	83,071.43	22,549	157	97	13	0	1950	Concrete		12	407	546	19	25	26
19-A	28	3,748.65	1,524.96	430,071.43	552,214.29	224,642.86	128,446	1103	718	20	4	1949	Vitrified Clay/Concrete	Includes MS18, MS19B, MS20	16	2857	272	20	27	28
22-A	31	1,001.54	39.78	16,571.43	4,357.14	-1,928.57	4,824	120	12		0	2000	PVC-PRIVATE	Cottonwood Apts.	27	311	8	21	29	30
22-A	79	2,102.18	1,174.19	16,071.43	7,928.57	4,428.57	2,773	14	28	1	1	1997	PVC		24	Commercial	341	22	31	32
22-B	30	2,167.85	502.88	28,142.86	59,428.57	13,785.71	25,893	208	67	14	2	1960	Concrete		23	539	136	23	33	34
25	11	2,073.29	3,086.67	13,285.71	28,642.86	42,642.86	13,118	80	46	13	0	1948	Concrete		25	207	344	24	35	36
25	12	9,011.54	3,479.17	24,357.11	71,000.03	75,642.89	8,944	106	55	14	0	1947	Concrete		5	275	534	25	37	38
28-A	46	1,290.17	894.96	28,071.43	22,571.43	17,071.43	22,631	174	84	3	3	1972	Concrete	Country Club Subd.	26	451	88	26	39	40
28-B	70	6,263.53	901.20	24,571.43	140,714.29	15,214.29	17,707	104	64	3	2	1989	PVC	River Club Subd.	9	269	579	27	41	42
28-C	100	4,243.22	1,191.80	10,285.71	59,000.00	16,571.43	13,437	71	72	7	0	1989	PVC	Cloverdale Subd.	13	184	411	28	43	44
28-D	95	701.95	407.18	9,142.86	3,785.71	3,142.86	7,456	46	55	2	2	1998	PVC	Princeton/Stonebridge Subds.	28	119	58	29	45	46
29	52	3,752.16	969.78	48,928.57	350,428.57	90,571.43	23,131	115	467	3	2	1973	Concrete		15	Industrial/Commercial		30	47	48
29-A	57	2,437.84	641.86	14,500.00	28,214.29	7,428.57	7,334	9	99	0	0	1973	Concrete/PVC	Notingham Apts.	20	185	193	31	49	50
29-B	26	7,757.96	618.96	18,642.86	119,071.43	9,500.00	8,873	26	226	2	0	1978	Concrete/PVC		7	Industrial/Commercial		32	51	52
29-B	47	2,371.88	315.34	1,500.00	4,714.29	2,142.86	2,624	3	36	0	0	1996	PVC-PRIVATE	Emanuel Baptist Church	21	Industrial/Commercial		33	53	54
31-A	19	29,510.64	3,079.18	15,071.43	93,785.71	9,785.71	1,678	13	86	0	0	1969	Concrete		1	Industrial/Commercial		34	55	56
31-A	51	10,687.79	63.96	20,357.14	65,642.86	392.86	3,808	4	53	1	0	1972	Concrete		3	Industrial/Commercial		35	57	58
33	91-E	7,737.38	124.97	5,785.71	101,714.29	1,642.86	9,036	19	200	0	0	1996	Concrete/PVC	Airport	8	Industrial/Commercial		36	59	60
33	91-F	15,569.71	2,367.07	2,928.57	75,642.86	11,500.00	3,398	4	44	0	0	1996	Concrete/PVC	Airport	2	Industrial/Commercial		37	61	62

NOTE* VALUES SHOWN IN TOTAL LINEAR FEET OF SEWER INCLUDES MAINLINES AND LATERALS.

APPENDICES

APPENDIX 1

MS3-E/PS6 I/I WORKSHEET

MS3-E/PS6
INFLOW & INFILTRATION WORKSHEET

Infiltration

	feet	miles	diameter	inch-miles	
8" Gravity	5863	1.110416667	8	8.883333	
Laterals	1830	0.346590909	4	1.386364	
				10.2697	**total inch-miles in system**
TOTAL PIPE	7693				

gallons per day per inch of diameter per mile	maximum average infiltration	inch-miles		
	74,142.8571	10.27	**7219.576**	**total gpd/idm**

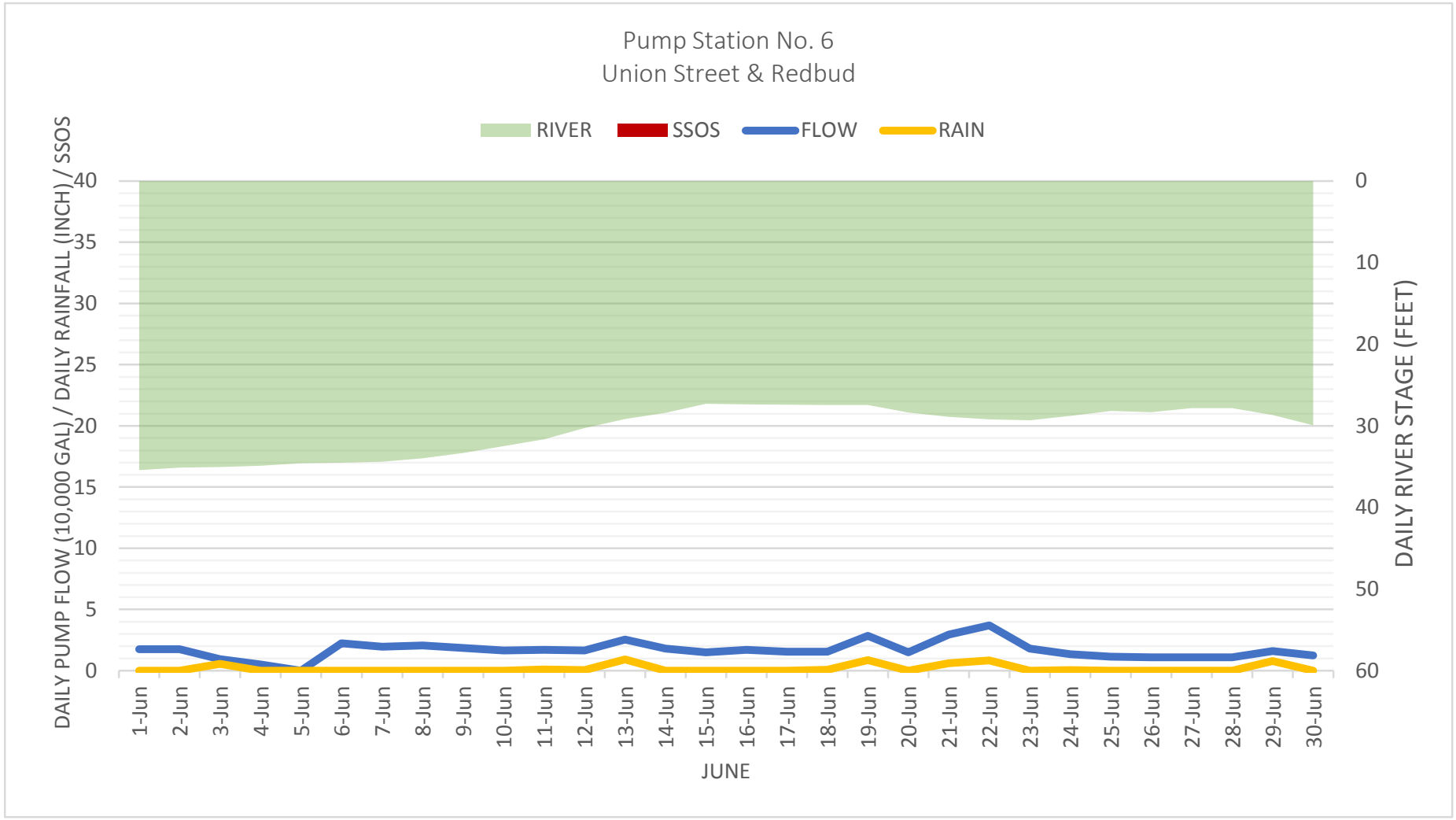
Inflow

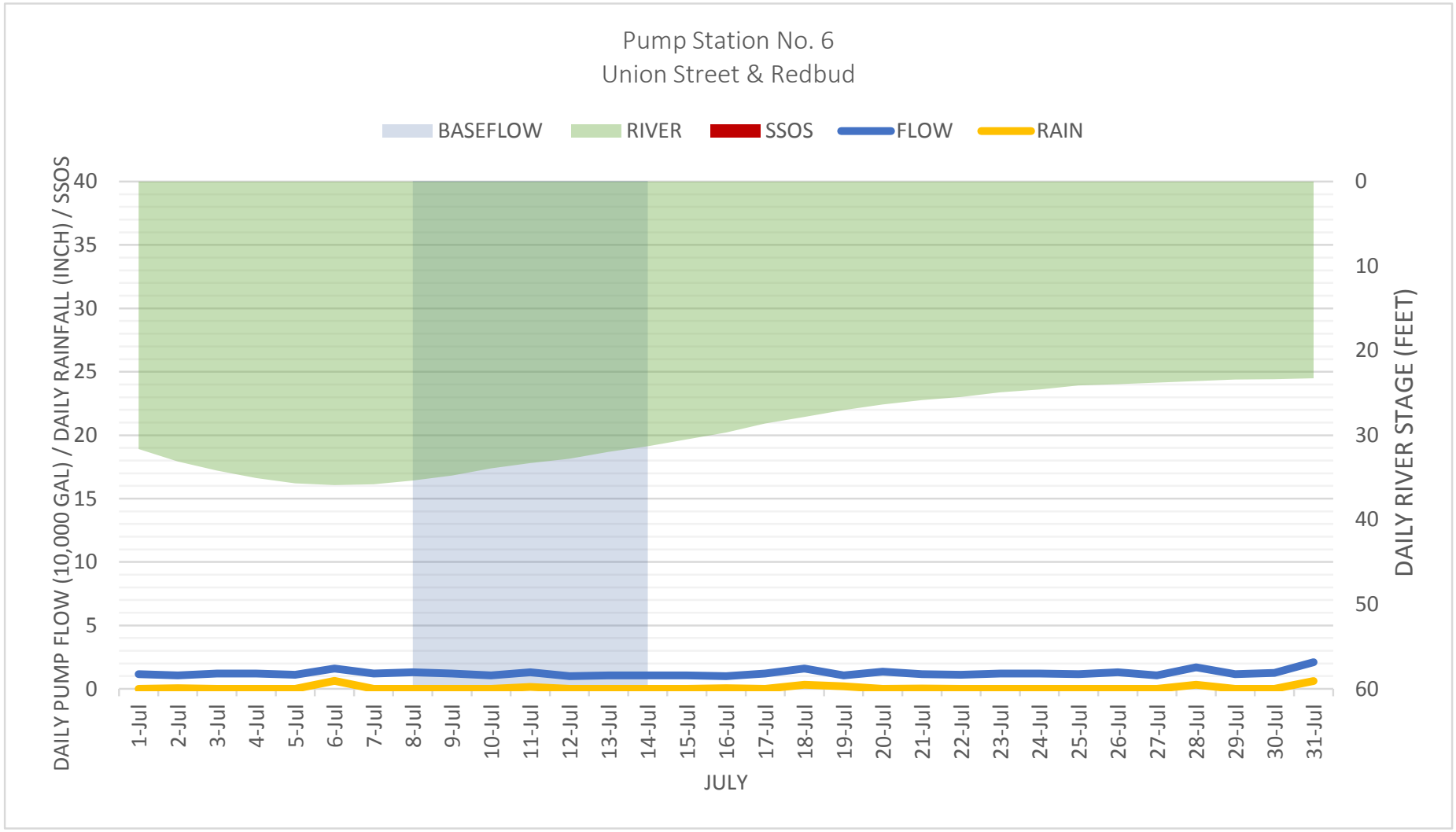
	feet	miles	diameter	inch-miles	
8" Gravity	5863	1.110416667	8	8.883333	
Laterals	1830	0.346590909	4	1.386364	
				10.2697	**total inch-miles in system**
TOTAL PIPE	7693				

gallons per day per inch of diameter per mile	maximum average inflow	inch-miles		
	81,857.1429	10.27	**7970.746**	**total gpd/idm**

APPENDIX 2

MS3-E/PS6 GRAPHS


Pump Station No. 6
Union Street & Redbud
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
0
5
10
15
20
25
30
35
40
0
10
20
30
40
50
60
1-Jun
2-Jun
3-Jun
4-Jun
5-Jun
6-Jun
7-Jun
8-Jun
9-Jun
10-Jun
11-Jun
12-Jun
13-Jun
14-Jun
15-Jun
16-Jun
17-Jun
18-Jun
19-Jun
20-Jun
21-Jun
22-Jun
23-Jun
24-Jun
25-Jun
26-Jun
27-Jun
28-Jun
29-Jun
30-Jun
JUNE


Pump Station No. 6
Union Street & Redbud
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
0
5
10
15
20
25
30
35
40
0
10
20
30
40
50
60
1-Jul
2-Jul
3-Jul
4-Jul
5-Jul
6-Jul
7-Jul
8-Jul
9-Jul
10-Jul
11-Jul
12-Jul
13-Jul
14-Jul
15-Jul
16-Jul
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19-Jul
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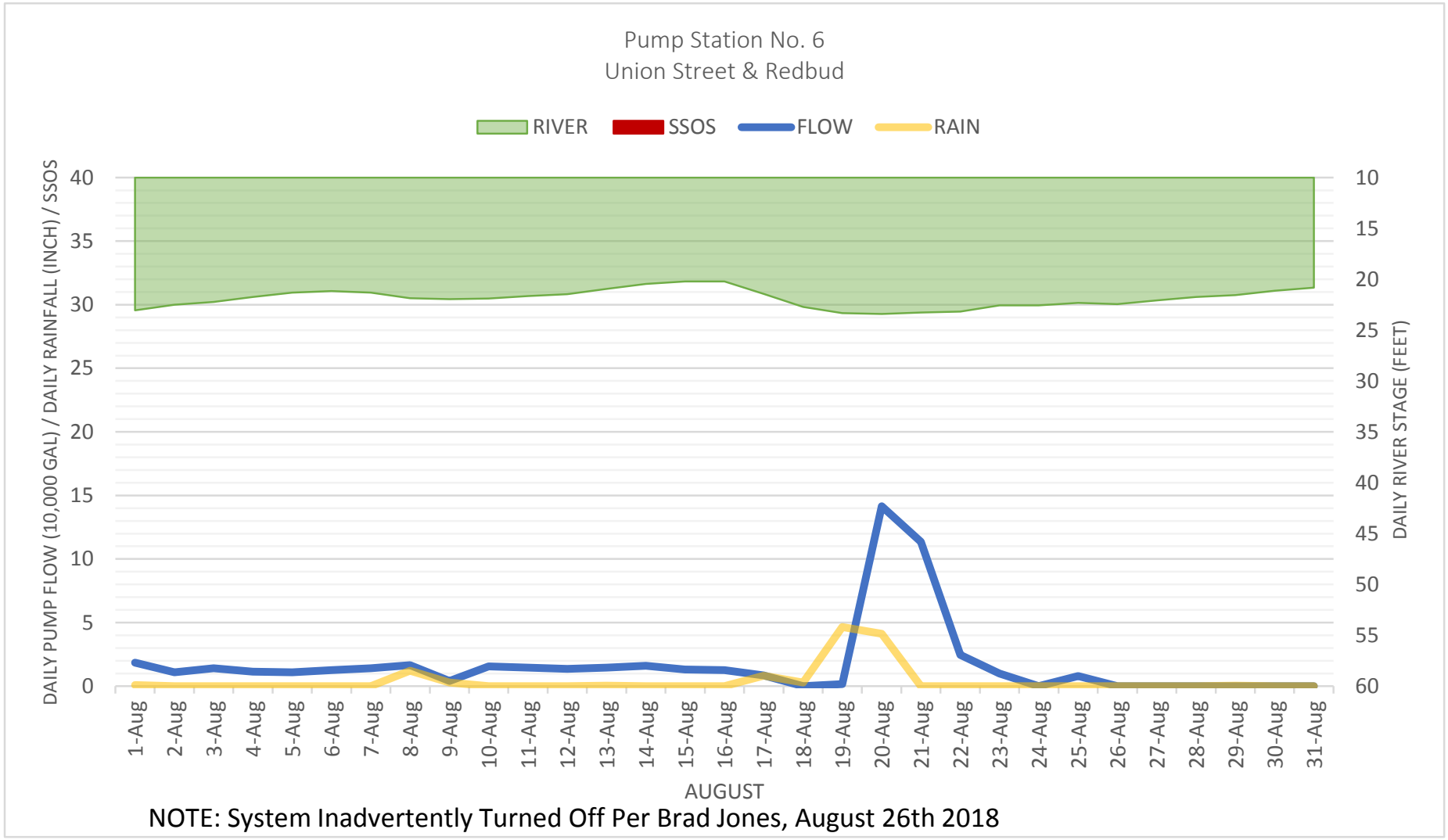
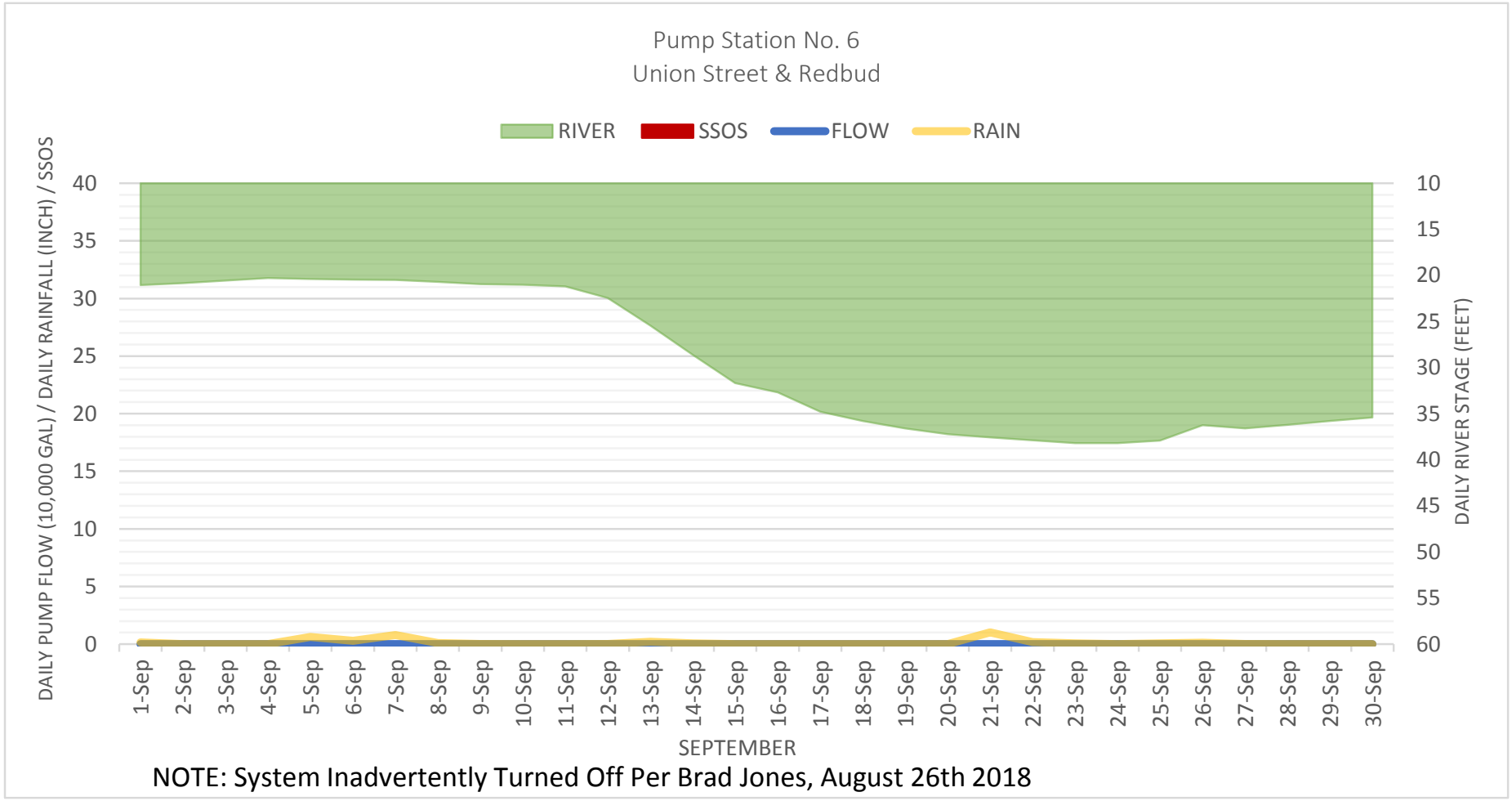
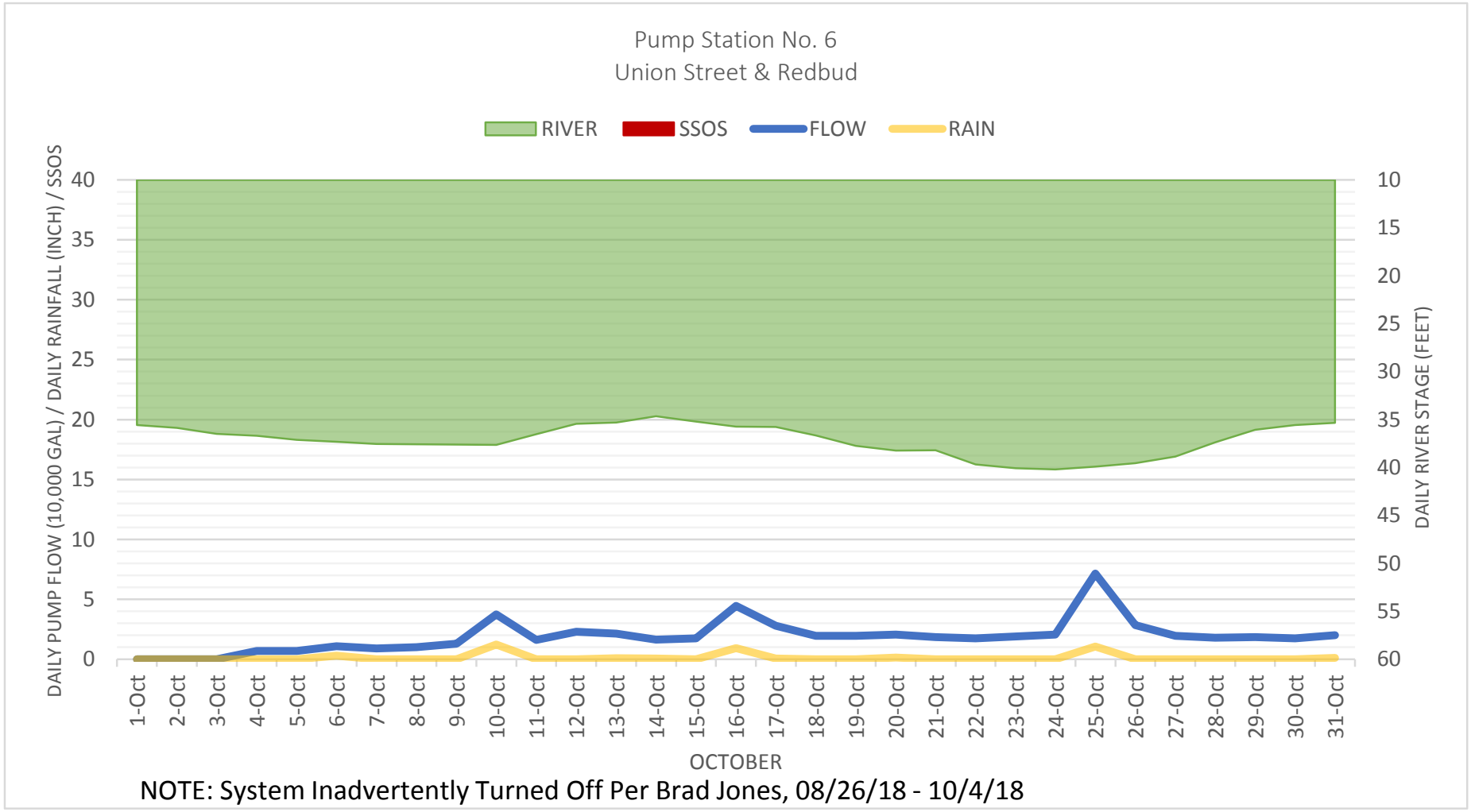
28-Jul
29-Jul
30-Jul
31-Jul
JULY



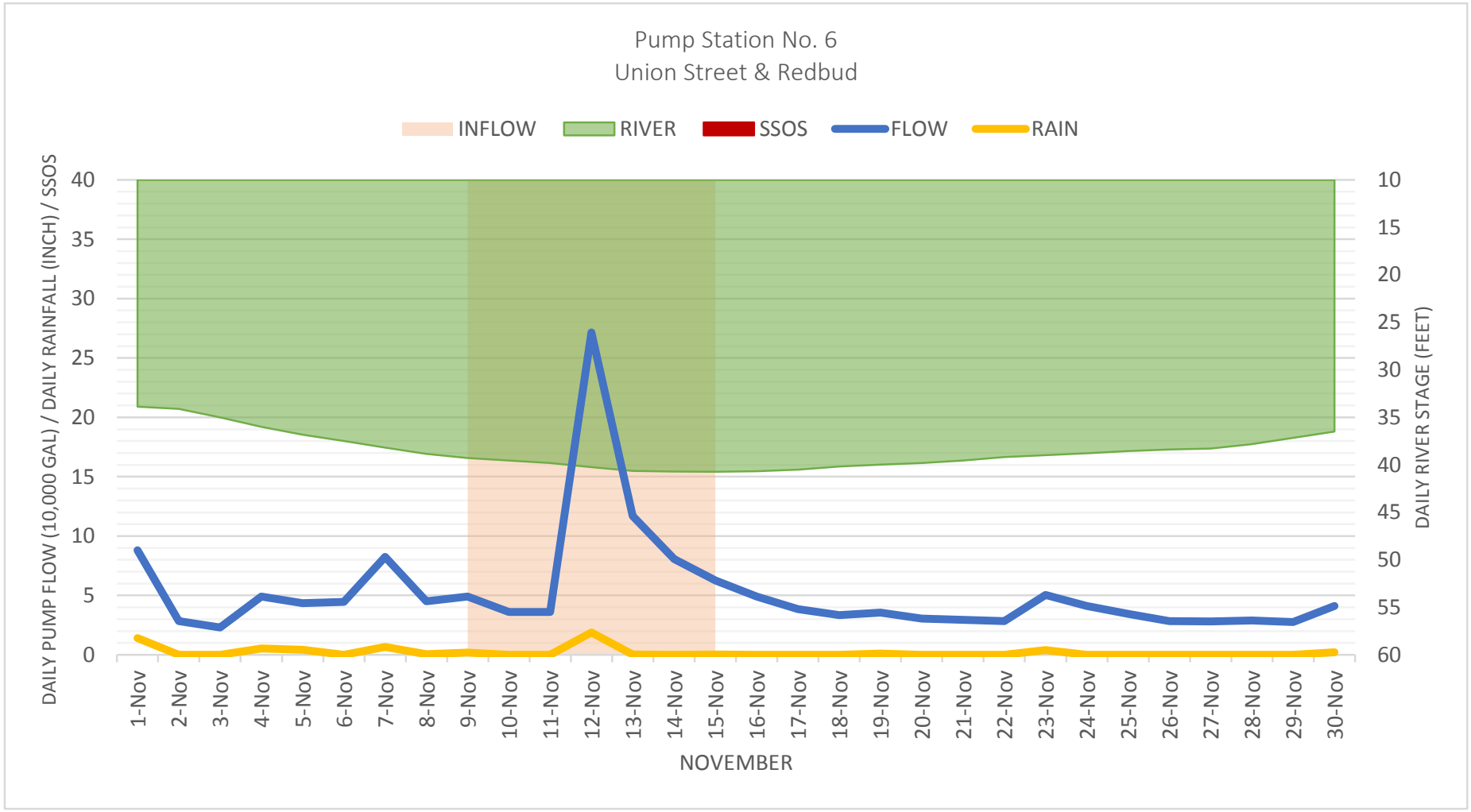
NOTE: System Inadvertently Turned Off Per Brad Jones, August 26th 2018



NOTE: System Inadvertently Turned Off Per Brad Jones, August 26th 2018



NOTE: System Inadvertently Turned Off Per Brad Jones, 08/26/18 - 10/4/18


Pump Station No. 6
Union Street & Redbud
INFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Nov
2-Nov
3-Nov
4-Nov
5-Nov
6-Nov
7-Nov
8-Nov
9-Nov
10-Nov
11-Nov
12-Nov
13-Nov
14-Nov
15-Nov
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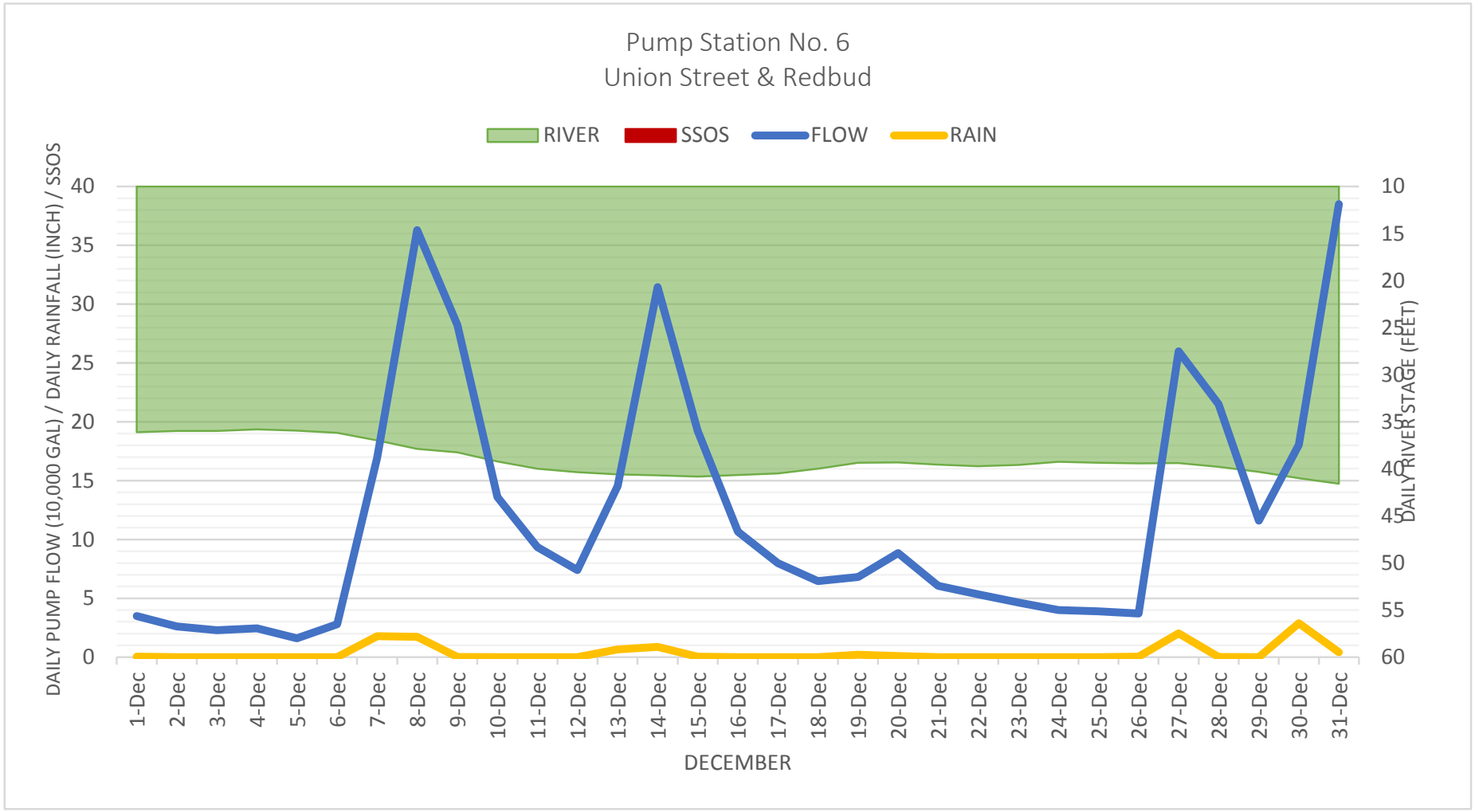
25-Nov
26-Nov
27-Nov
28-Nov
29-Nov
30-Nov
NOVEMBER


Pump Station No. 6
Union Street & Redbud
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Dec
2-Dec
3-Dec
4-Dec
5-Dec
6-Dec
7-Dec
8-Dec
9-Dec
10-Dec
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28-Dec
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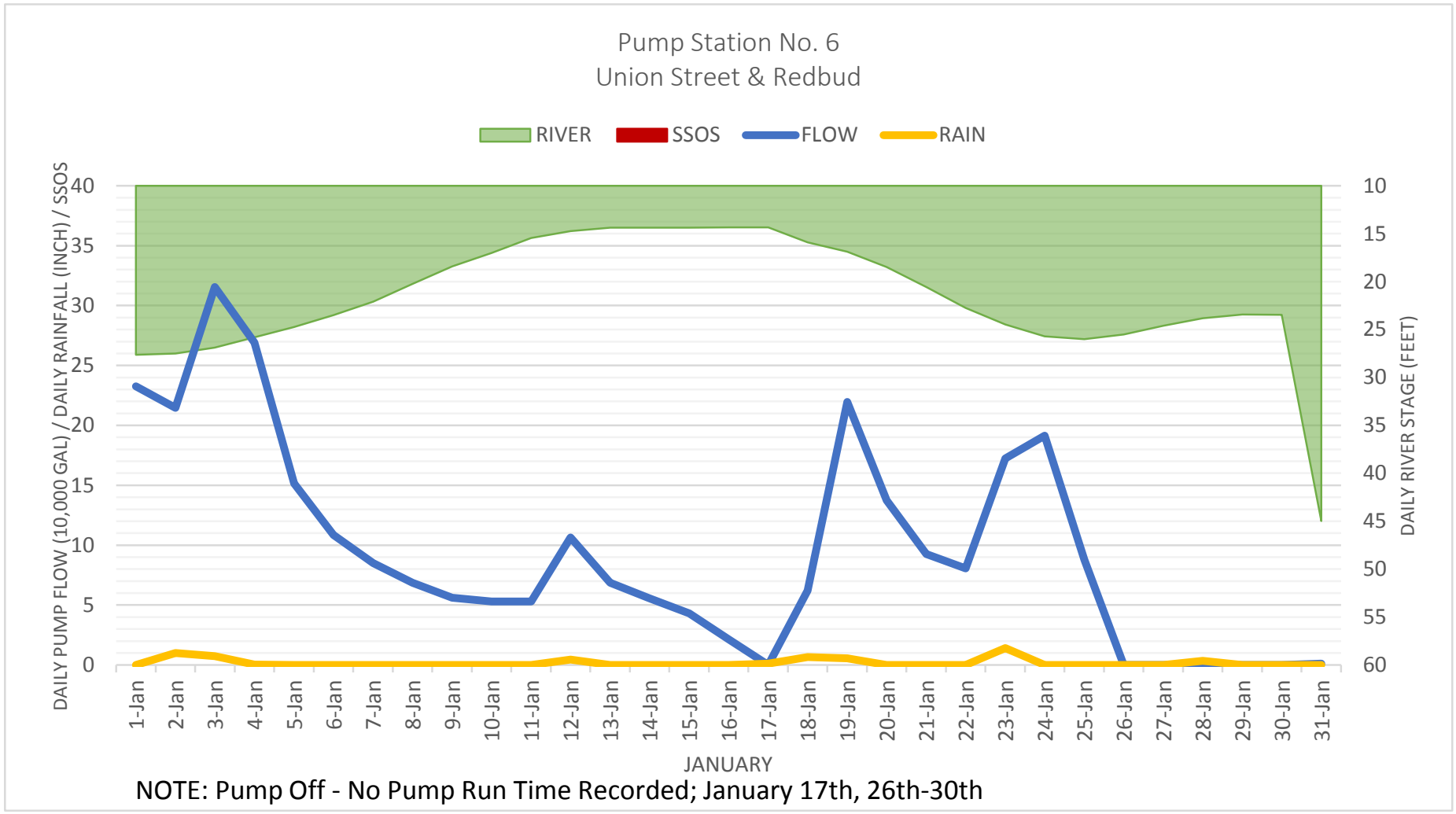
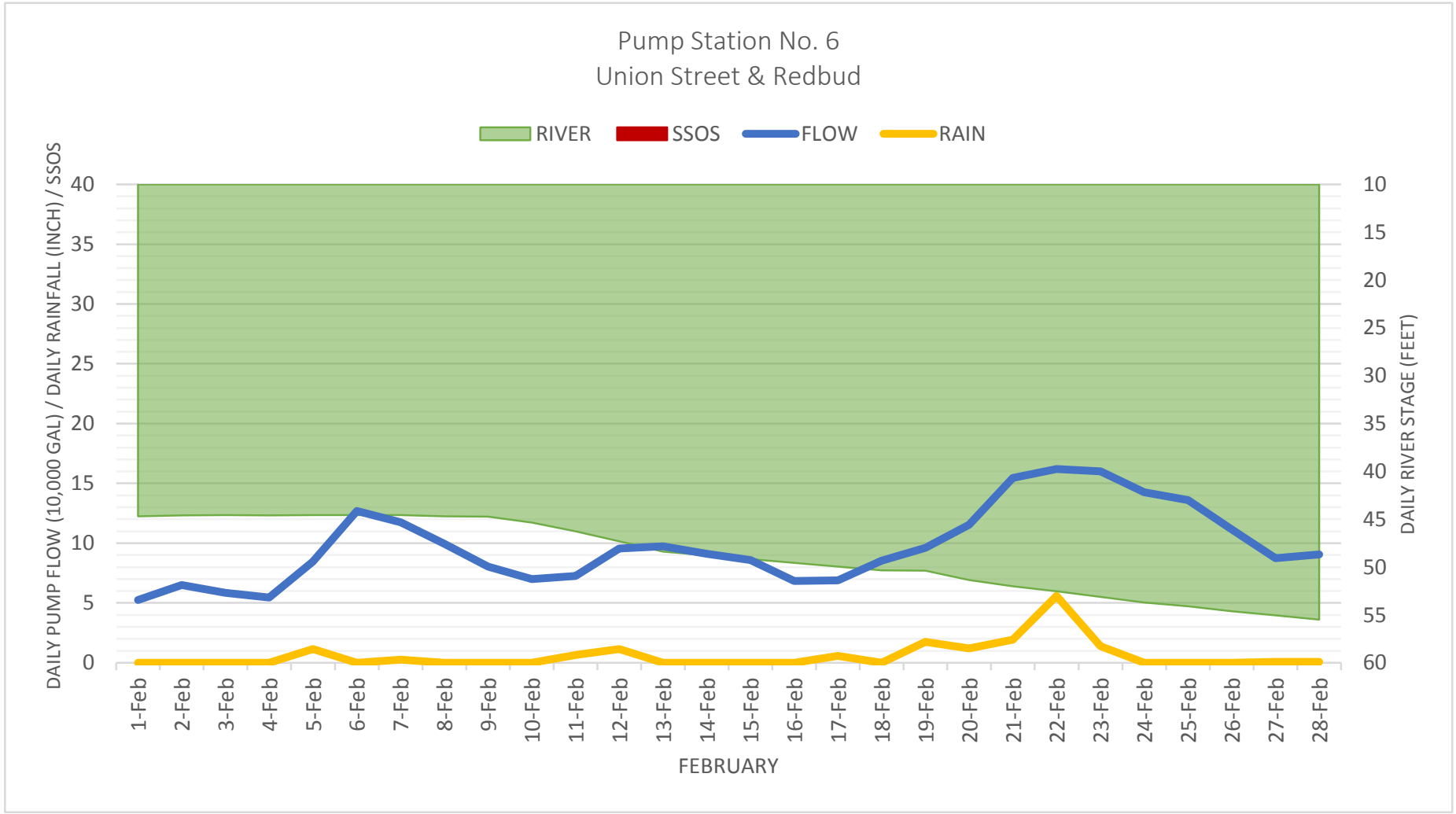
30-Dec
31-Dec
DECEMBER



NOTE: Pump Off - No Pump Run Time Recorded; January 17th, 26th-30th


Pump Station No. 6
Union Street & Redbud
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Feb
2-Feb
3-Feb
4-Feb
5-Feb
6-Feb
7-Feb
8-Feb
9-Feb
10-Feb
11-Feb
12-Feb
13-Feb
14-Feb
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16-Feb
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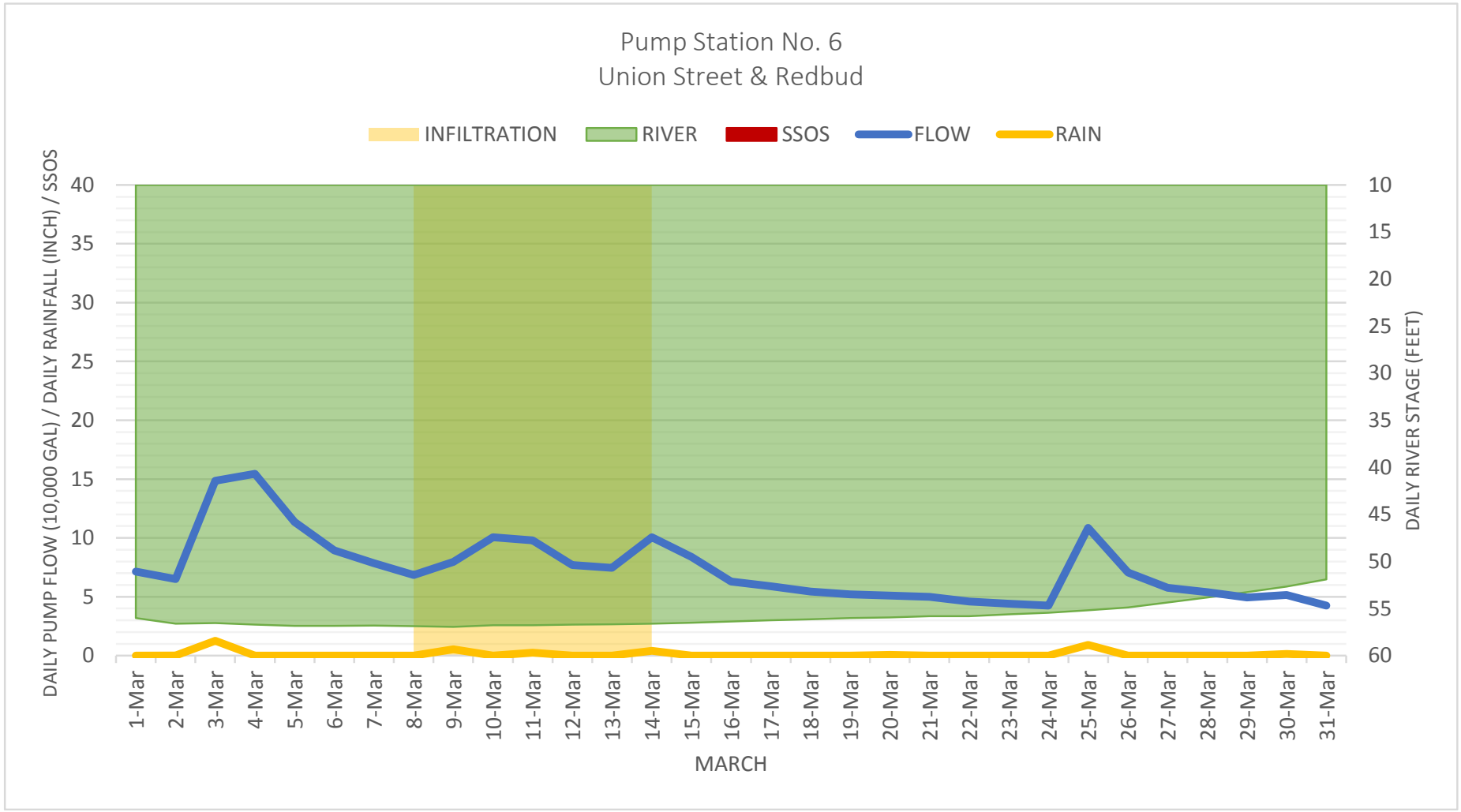
28-Feb
FEBRUARY


Pump Station No. 6
Union Street & Redbud
INFILTRATION
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Mar
2-Mar
3-Mar
4-Mar
5-Mar
6-Mar
7-Mar
8-Mar
9-Mar
10-Mar
11-Mar
12-Mar
13-Mar
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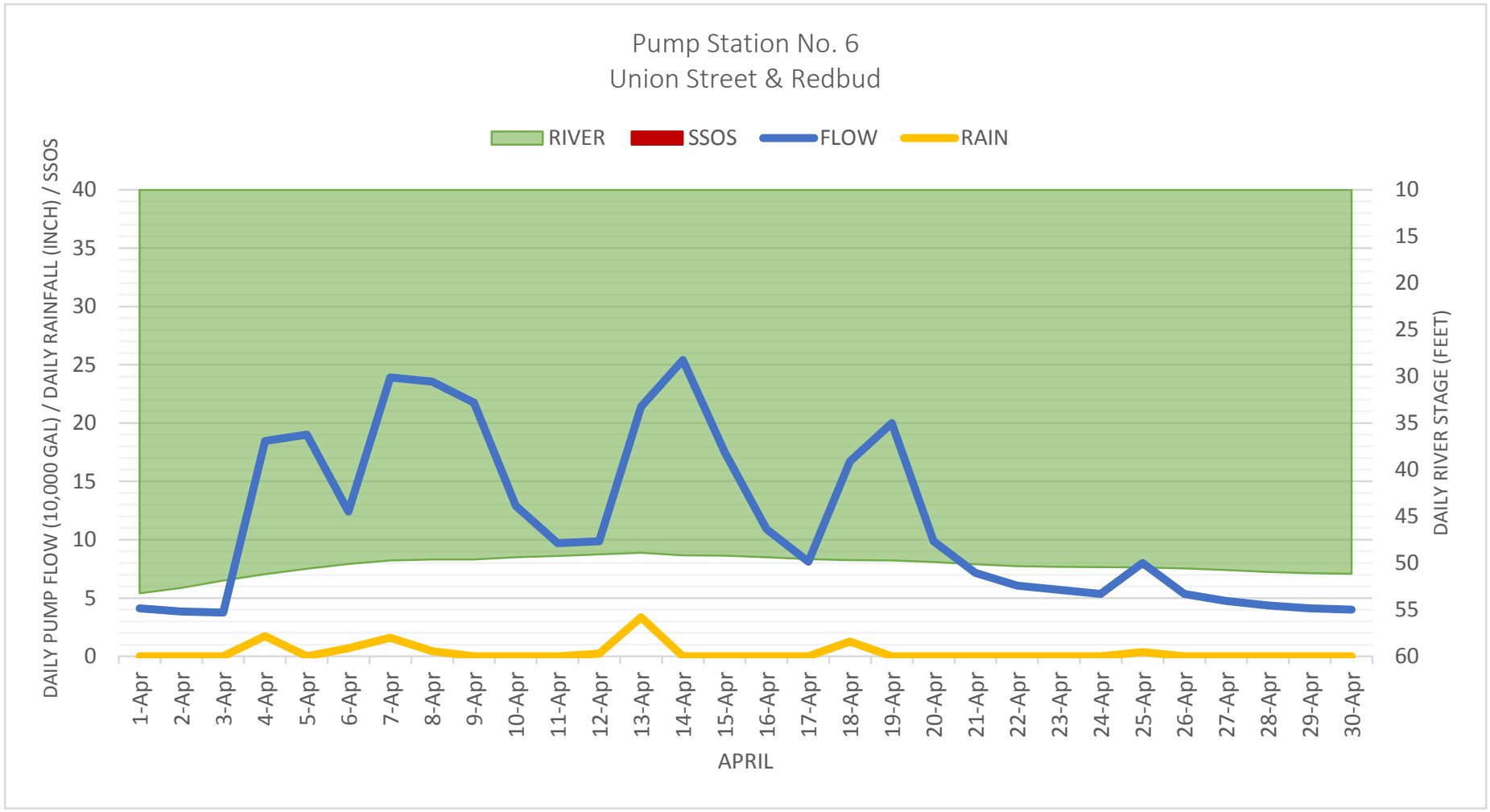
29-Mar
30-Mar
31-Mar
MARCH


Pump Station No. 6
Union Street & Redbud
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Apr
2-Apr
3-Apr
4-Apr
5-Apr
6-Apr
7-Apr
8-Apr
9-Apr
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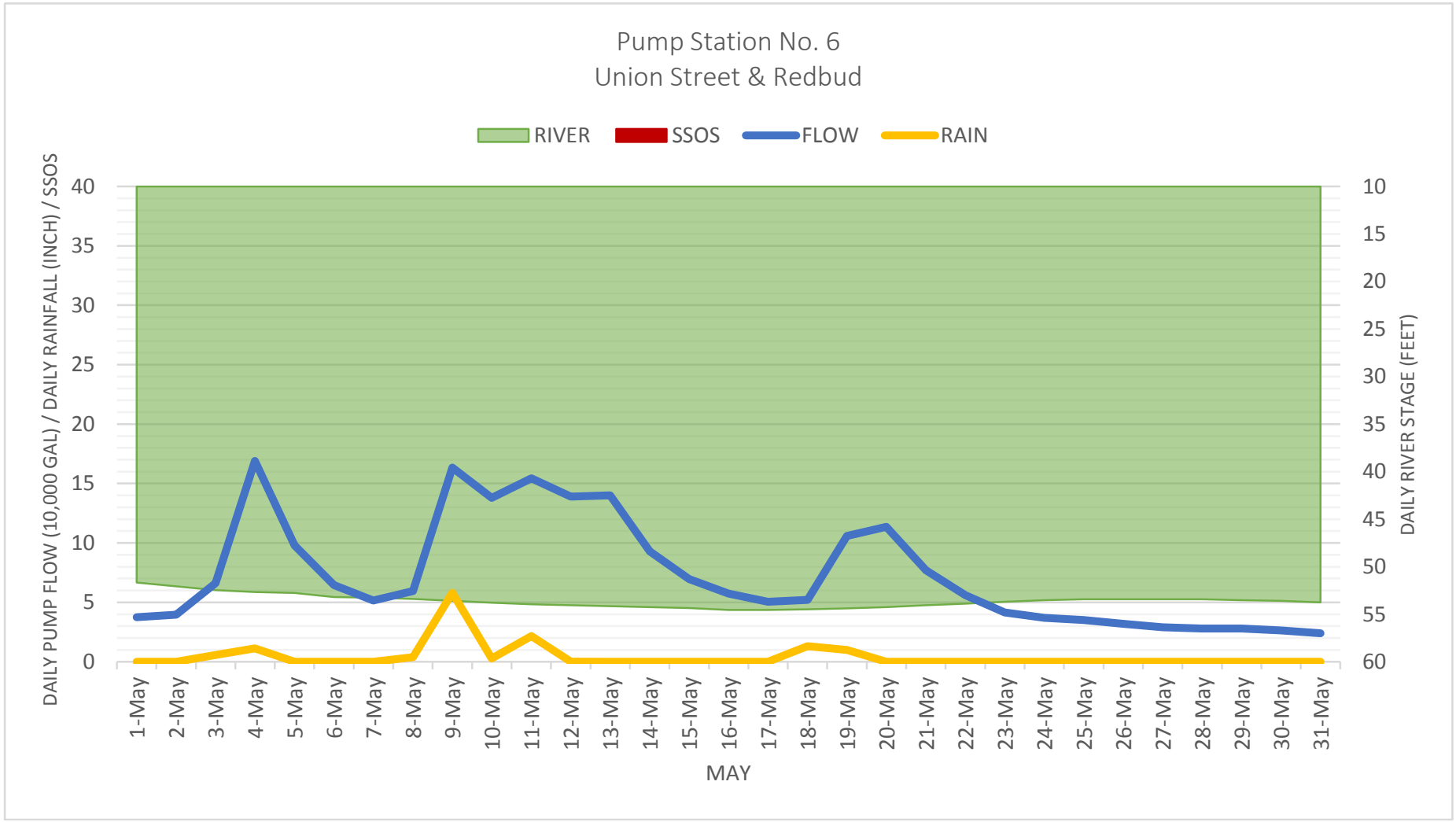
29-Apr
30-Apr
APRIL


Pump Station No. 6
Union Street & Redbud
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
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10
15
20
25
30
35
40
45
50
55
60
1-May
2-May
3-May
4-May
5-May
6-May
7-May
8-May
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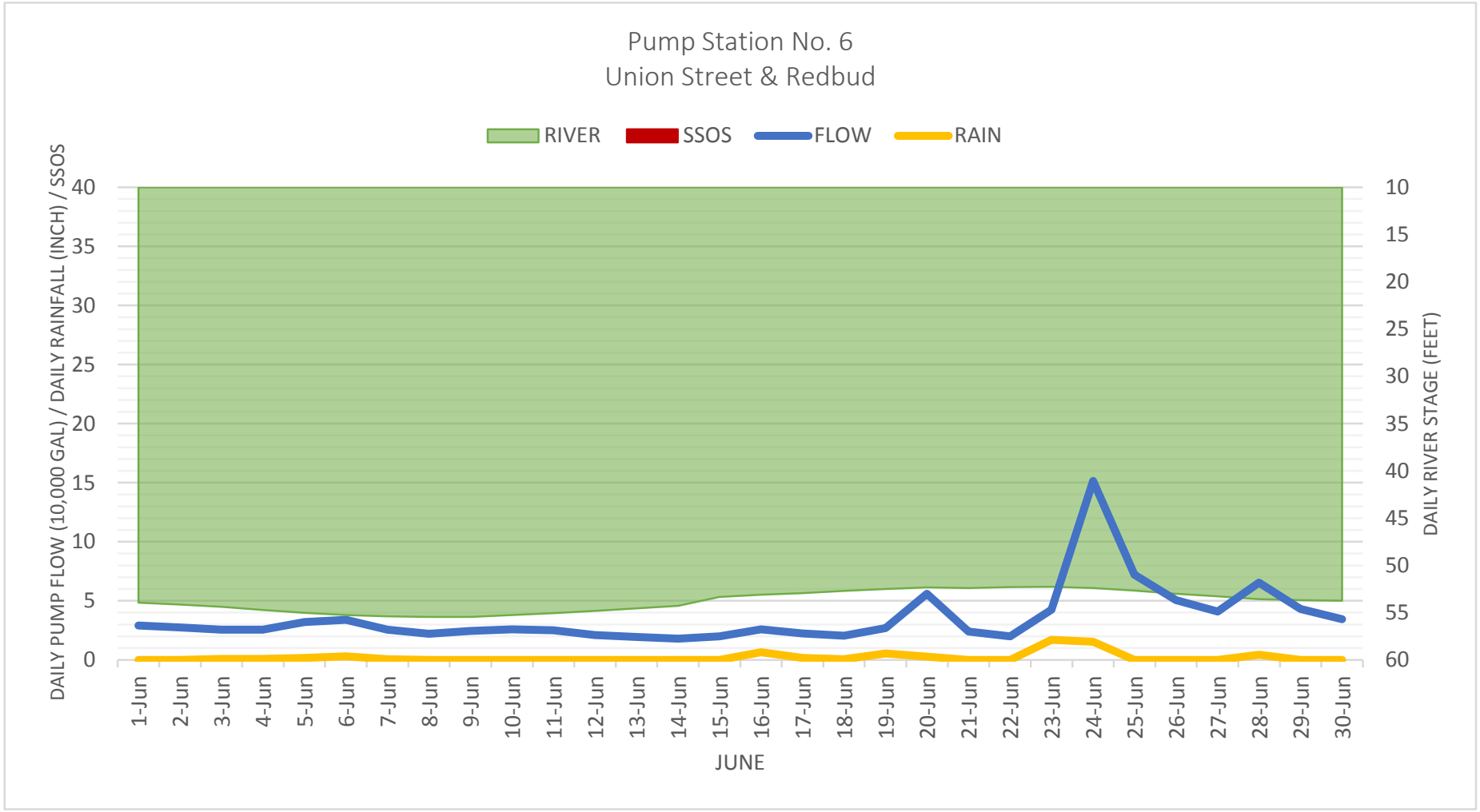
30-May
31-May
MAY


Pump Station No. 6
Union Street & Redbud
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
0
5
10
15
20
25
30
35
40
10
15
20
25
30
35
40
45
50
55
60
1-Jun
2-Jun
3-Jun
4-Jun
5-Jun
6-Jun
7-Jun
8-Jun
9-Jun
10-Jun
11-Jun
12-Jun
13-Jun
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17-Jun
18-Jun
19-Jun
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25-Jun
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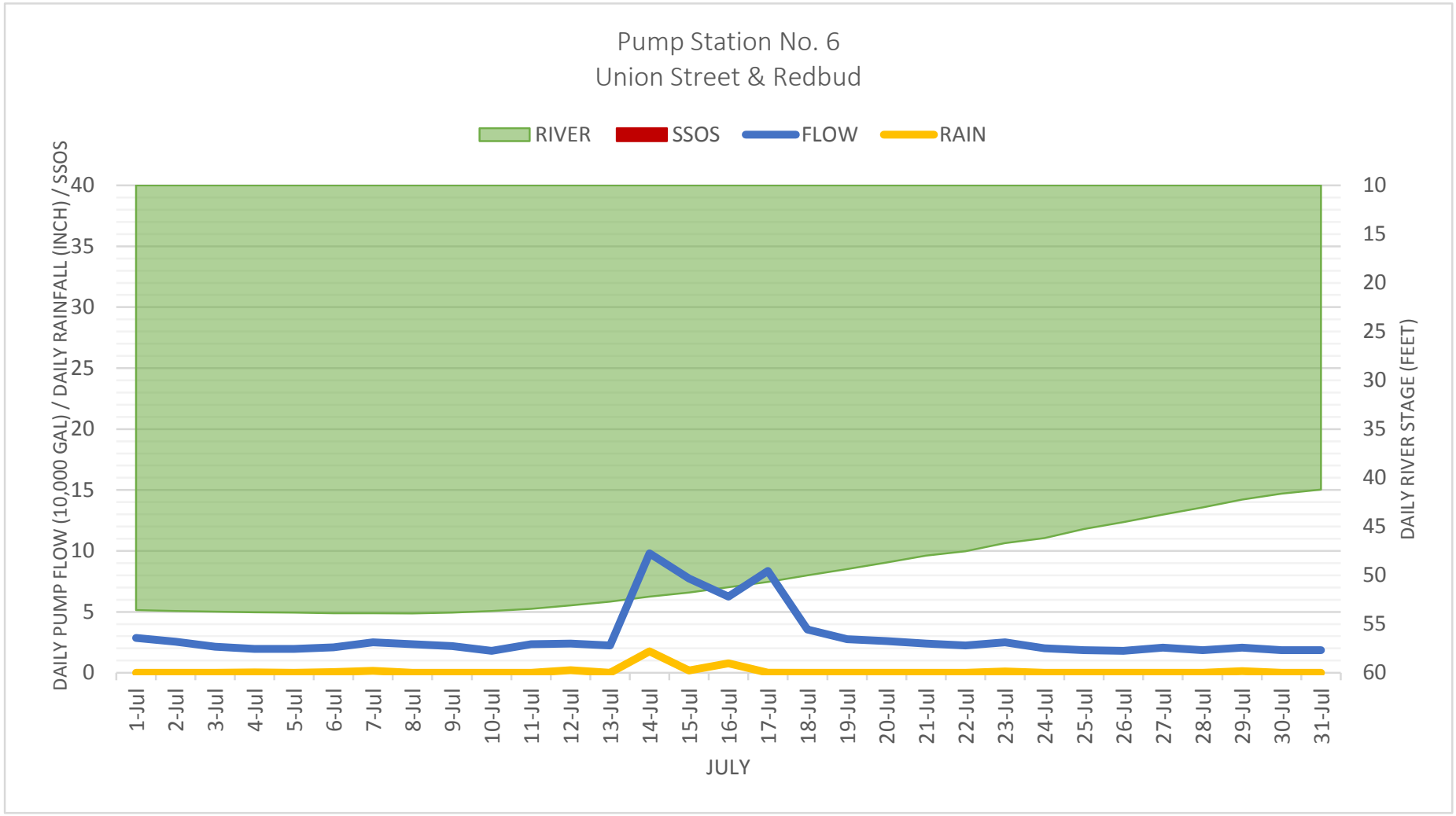
27-Jun
28-Jun
29-Jun
30-Jun
JUNE


Pump Station No. 6
Union Street & Redbud
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Jul
2-Jul
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27-Jul
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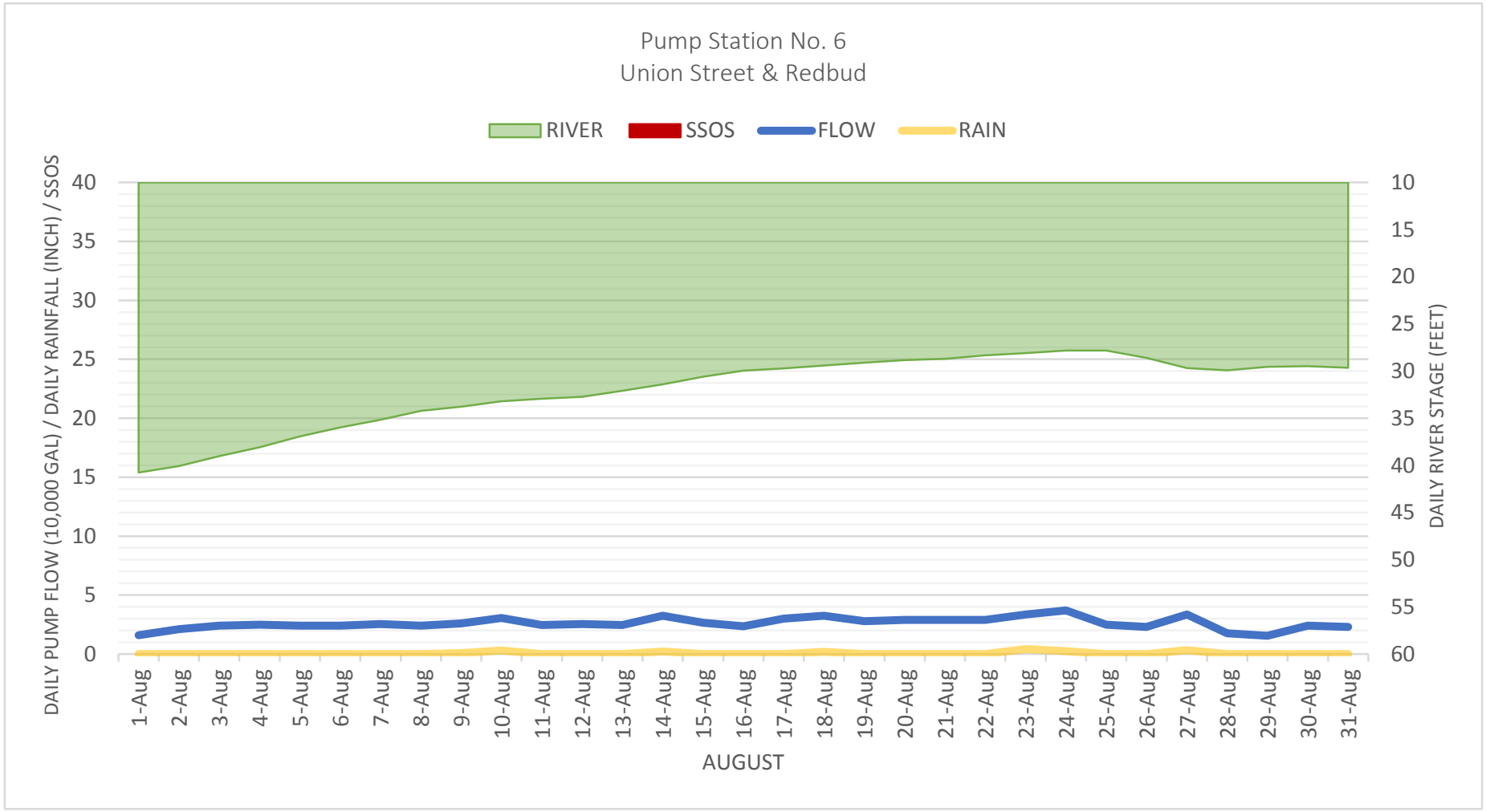
29-Jul
30-Jul
31-Jul
JULY


Pump Station No. 6
Union Street & Redbud
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
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35
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60
1-Aug
2-Aug
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15-Aug
16-Aug
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18-Aug
19-Aug
20-Aug
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24-Aug
25-Aug
26-Aug
27-Aug
28-Aug
29-Aug
30-Aug
31-Aug
AUGUST

APPENDIX 3

MS4-A/4-B // PS7 I/I WORKSHEET

MS4-A/4-B /PS7
INFLOW & INFILTRATION WORKSHEET

Infiltration

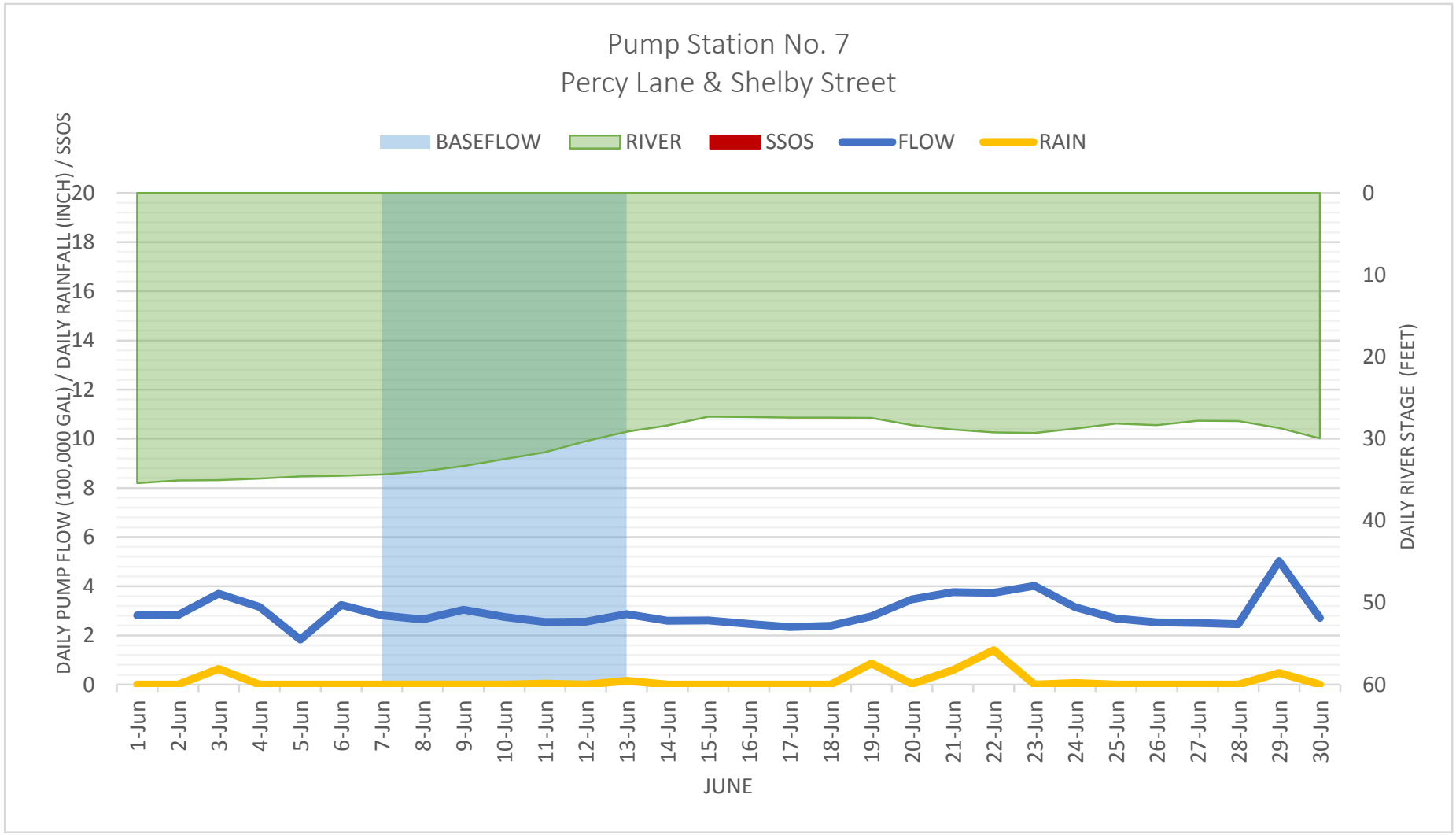
	feet	miles	diameter	inch-miles	
15" Gravity	957	0.18125	15	2.71875	
12" Gravity	728	0.137878788	12	1.654545	
10" Gravity	7,082	1.341287879	10	13.41288	
8" Gravity	49,443	9.364204545	8	74.91364	
6" Gravity	23,709	4.490340909	6	26.94205	
Laterals	2,937	0.55625	4	2.225	
total pipe in system	84,856			**104.0807**	**total inch-miles in system**
		maximum average infiltration	inch-miles		
		778,714	104.08	**7481.833**	**total gpd/idm**

Inflow

	feet	miles	diameter	inch-miles	
15" Gravity	957	0.18125	15.00	2.71875	
12" Gravity	728	0.137878788	12	1.654545	
10" Gravity	7,082	1.341287879	10	13.41288	
8" Gravity	49,443	9.364204545	8	74.91364	
6" Gravity	23,709	4.490340909	6	26.94205	
Laterals	2,937	0.55625	4	2.225	
total pipe in system	84,856			**104.0807**	**total inch-miles in system**
		maximum average inflow	inch-miles		
		400,429	104.08	**3847.29**	**total gpd/idm**

APPENDIX 4

MS4-A/4-B // PS7 GRAPHS


Pump Station No. 7
Percy Lane & Shelby Street
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
0
2
4
6
8
10
12
14
16
18
20
0
10
20
30
40
50
60
1-Jun
2-Jun
3-Jun
4-Jun
5-Jun
6-Jun
7-Jun
8-Jun
9-Jun
10-Jun
11-Jun
12-Jun
13-Jun
14-Jun
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18-Jun
19-Jun
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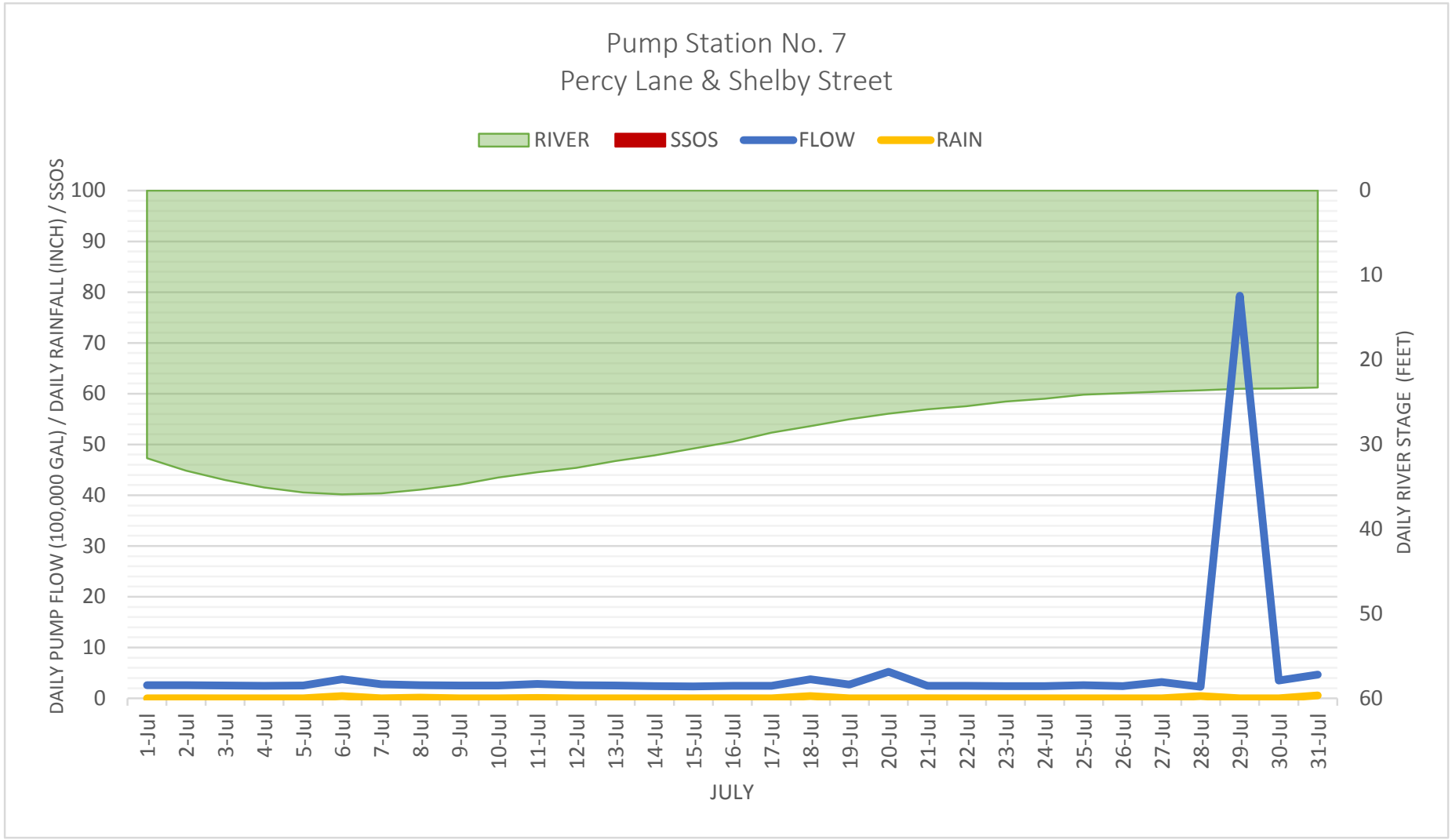
28-Jun
29-Jun
30-Jun
JUNE


Pump Station No. 7
Percy Lane & Shelby Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
100
90
80
70
60
50
40
30
20
10
0
0
10
20
30
40
50
60
1-Jul
2-Jul
3-Jul
4-Jul
5-Jul
6-Jul
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10-Jul
11-Jul
12-Jul
13-Jul
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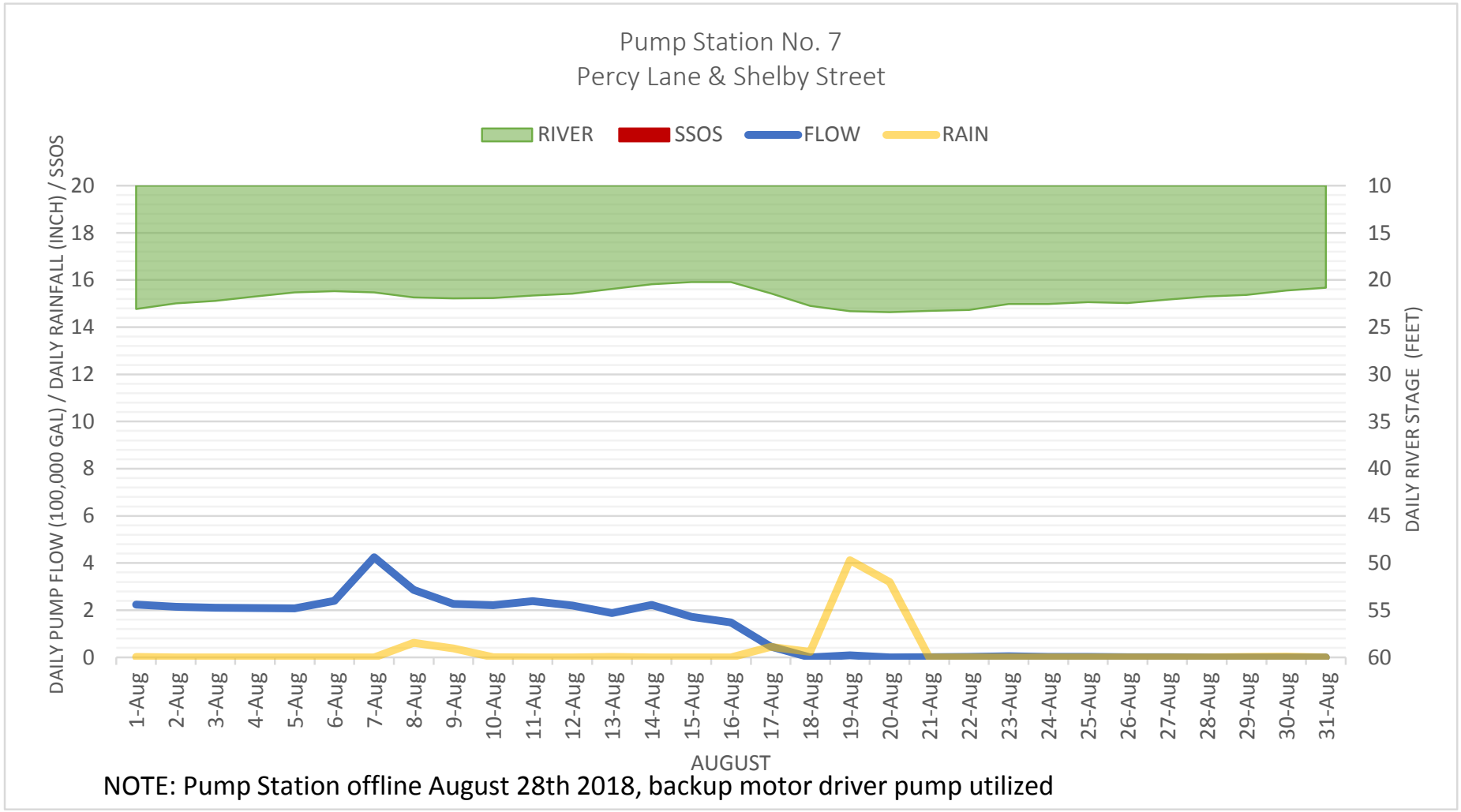
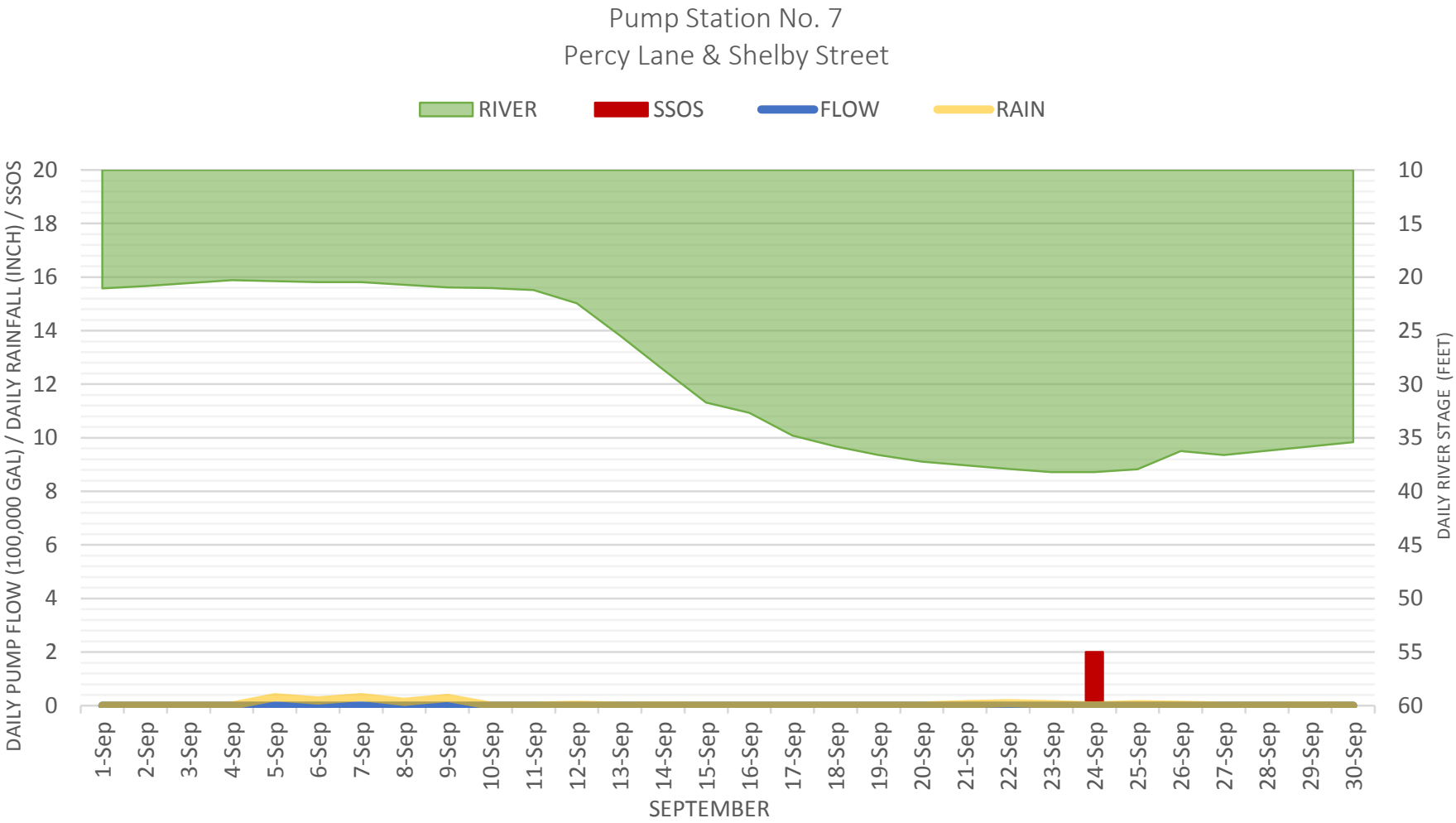
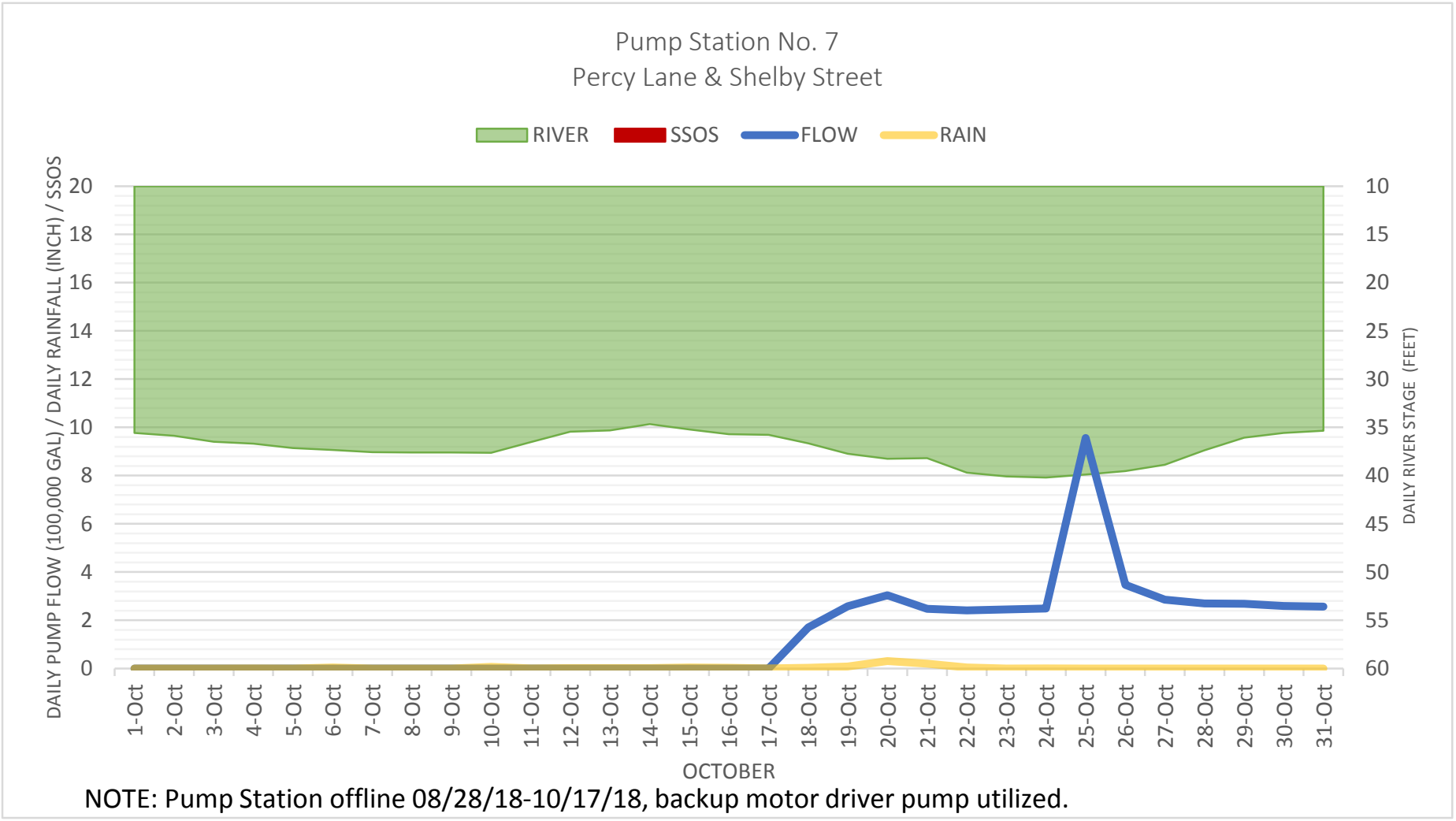
31-Jul
JULY



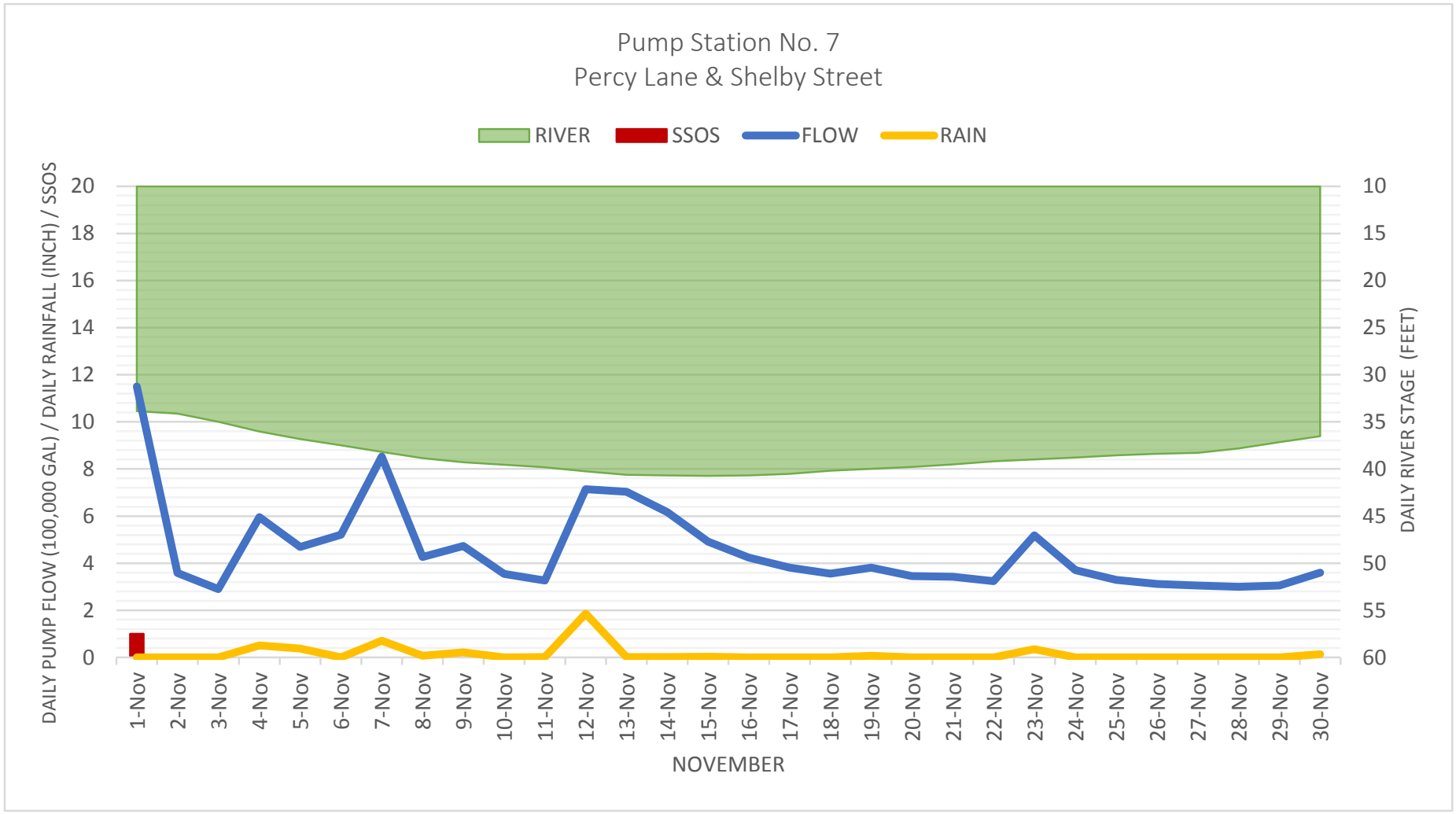
NOTE: Pump Station offline August 28th 2018, backup motor driver pump utilized



NOTE: Pump Station offline August 28th 2018, backup motor driver pump utilized.



NOTE: Pump Station offline 08/28/18-10/17/18, backup motor driver pump utilized.


Pump Station No. 7
Percy Lane & Shelby Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
20
18
16
14
12
10
8
6
4
2
0
10
15
20
25
30
35
40
45
50
55
60
1-Nov
2-Nov
3-Nov
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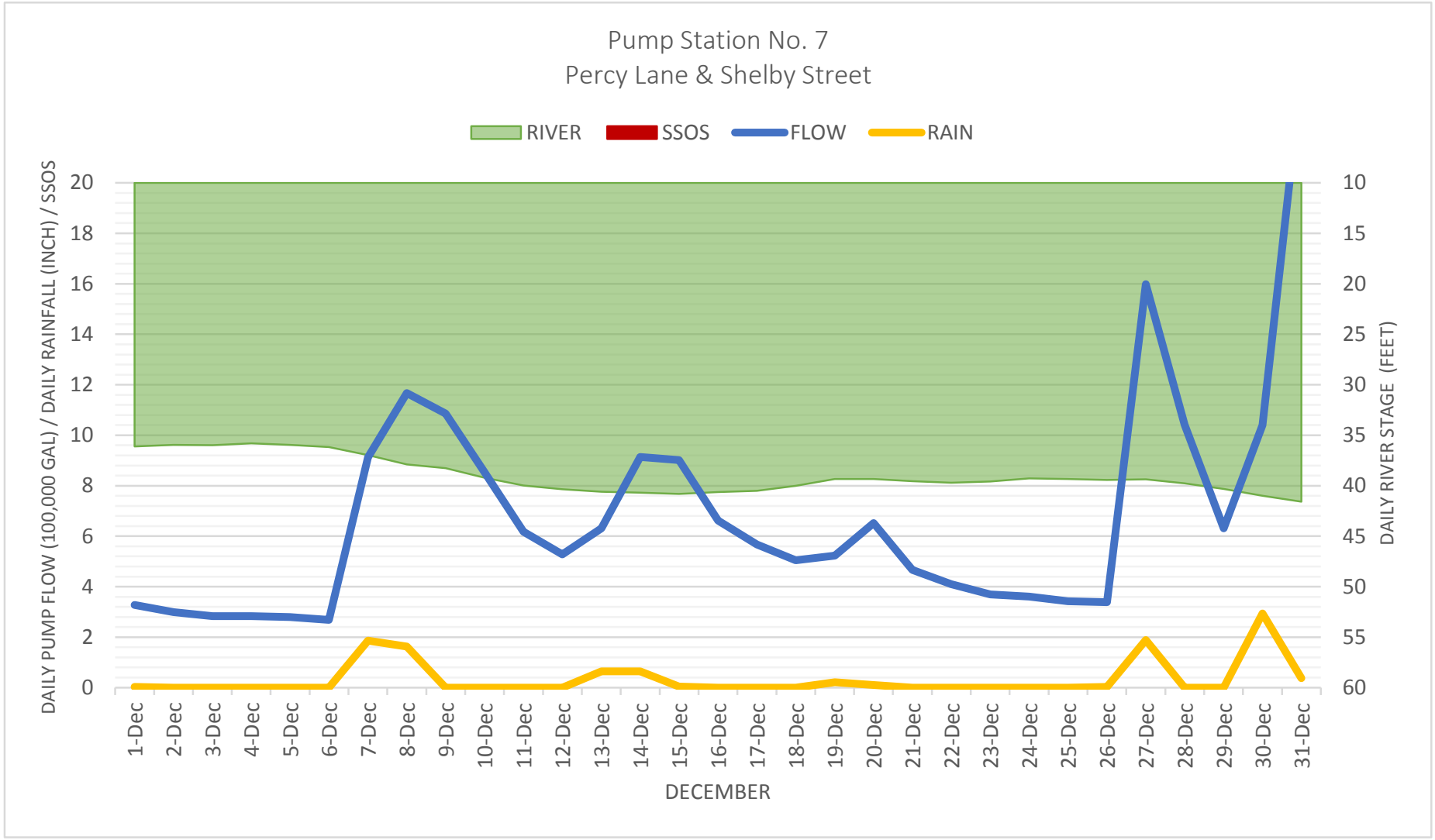
30-Nov
NOVEMBER


Pump Station No. 7
Percy Lane & Shelby Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
0
2
4
6
8
10
12
14
16
18
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35
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1-Dec
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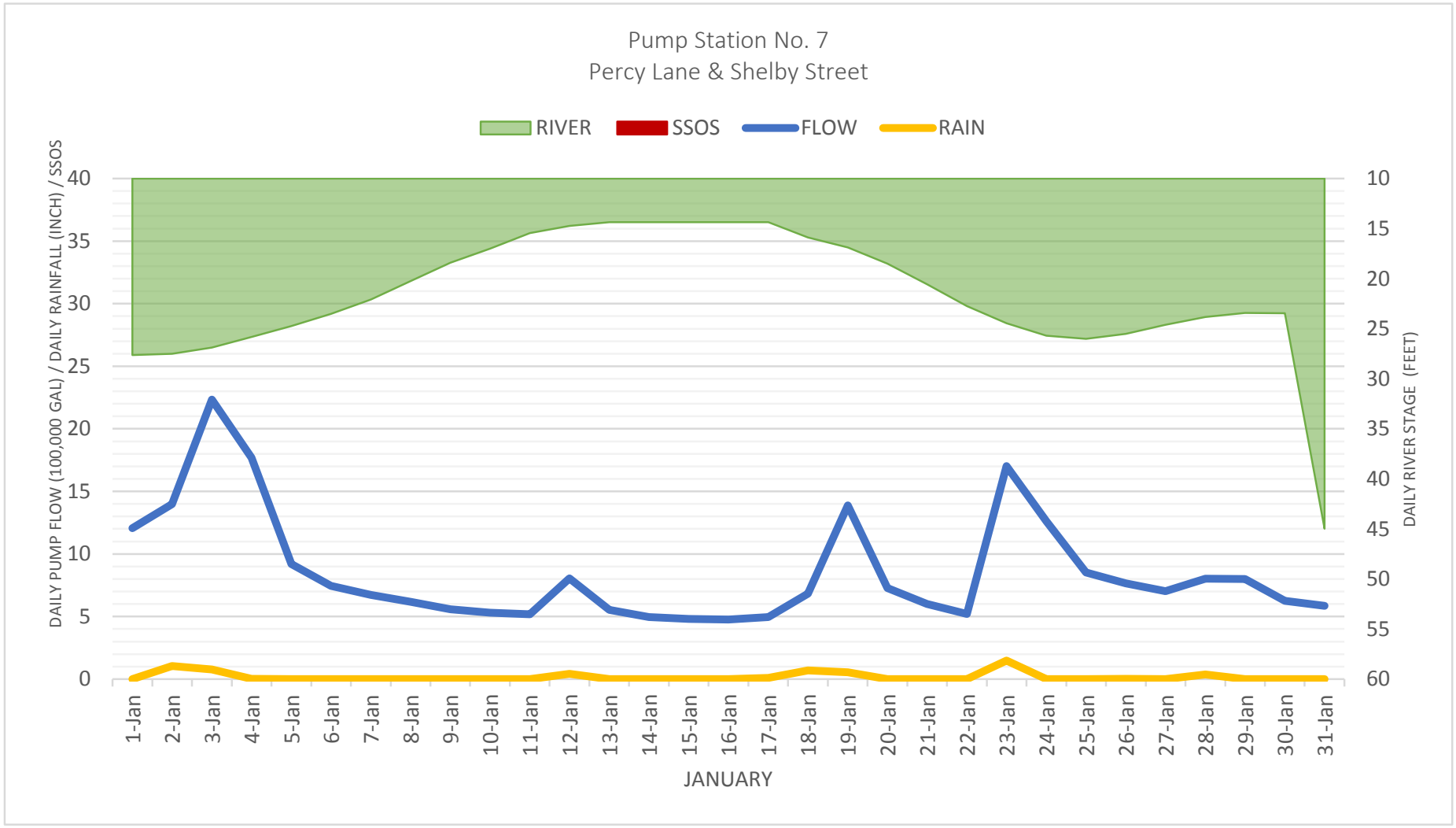
DECEMBER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Percy Lane & Shelby Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
0
5
10
15
20
25
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1-Jan
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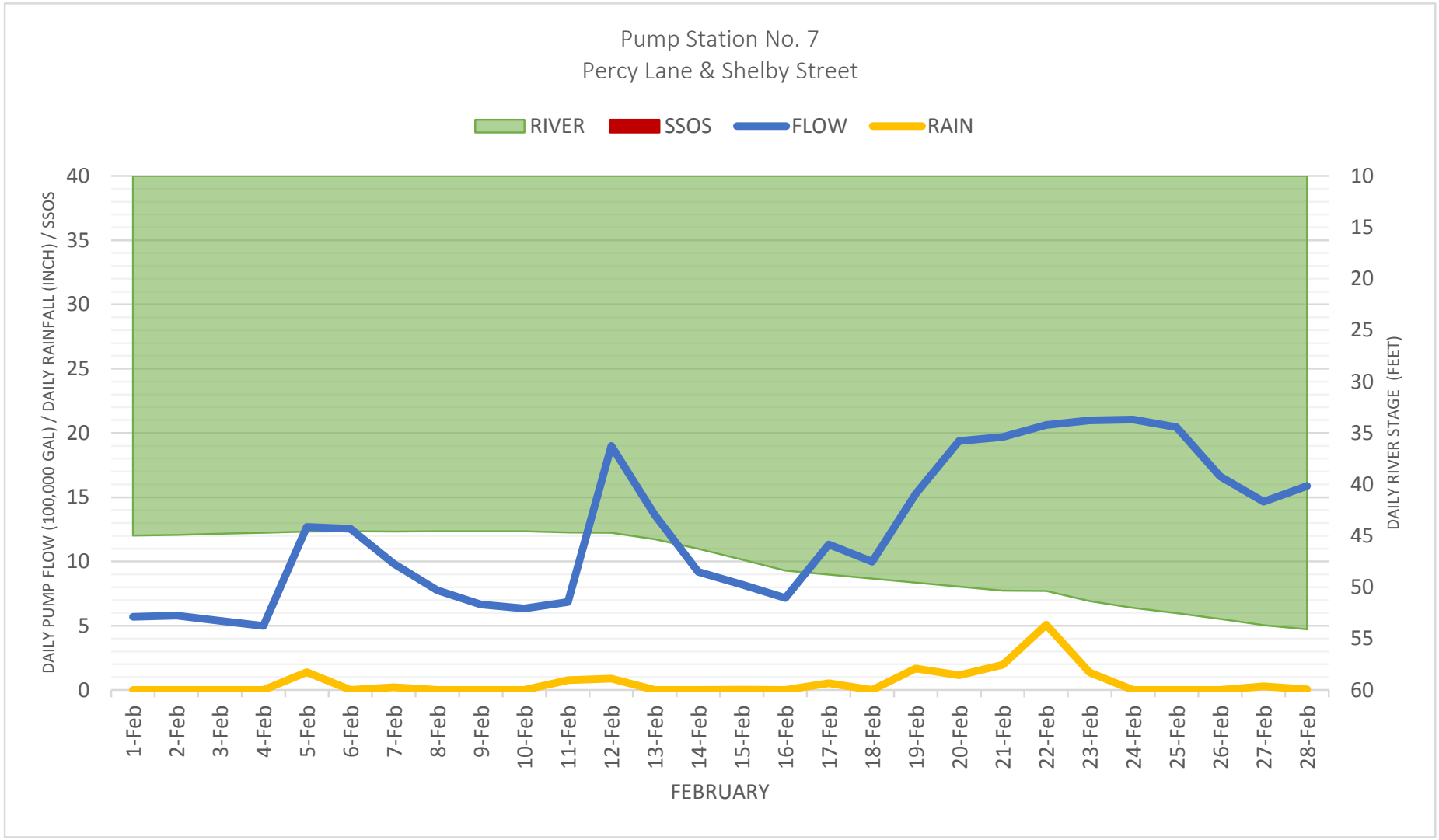
JANUARY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Percy Lane & Shelby Street
RIVER
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FLOW
RAIN
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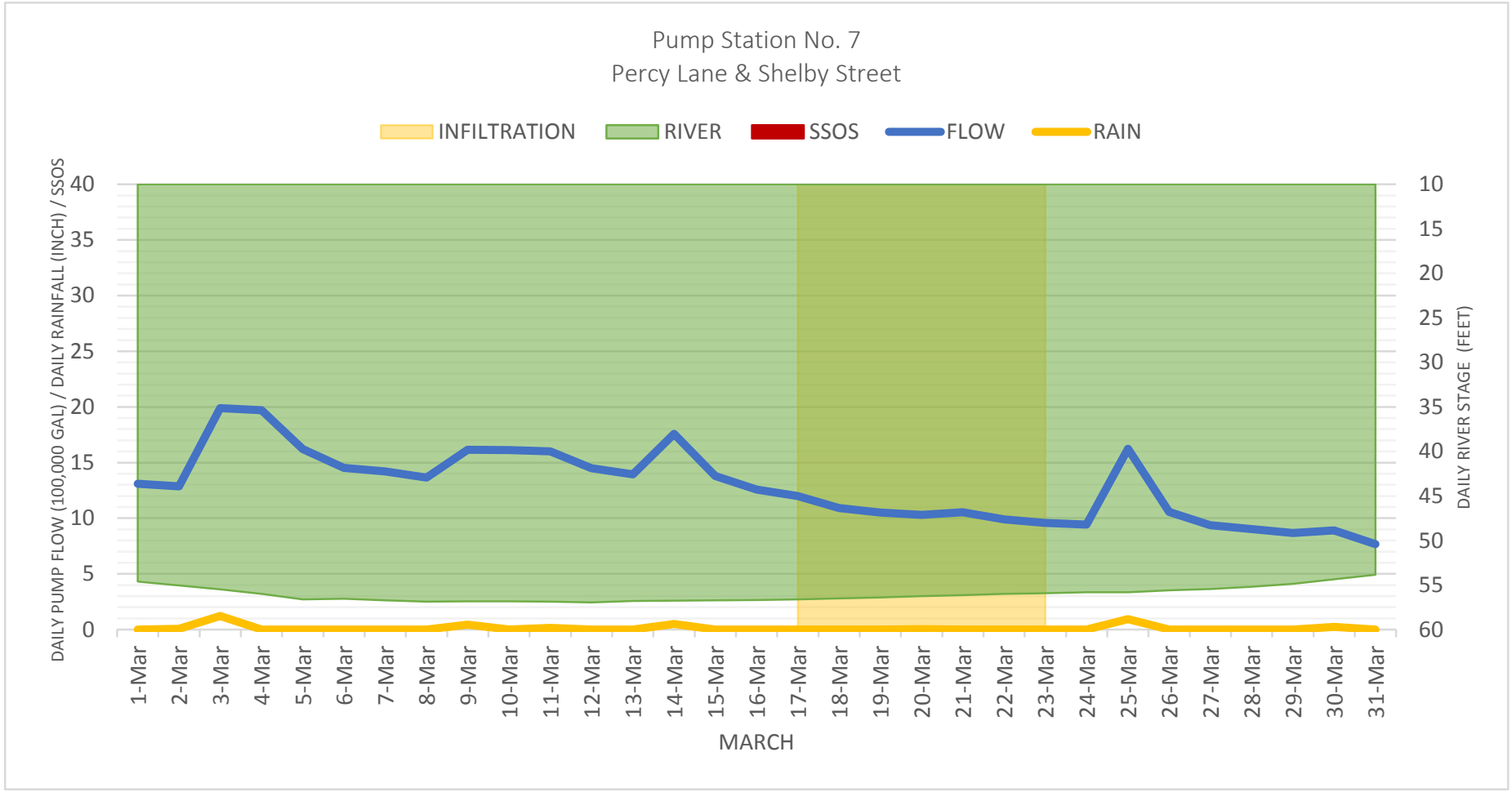
28-Feb
FEBRUARY


Pump Station No. 7
Percy Lane & Shelby Street
INFILTRATION
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FLOW
RAIN
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DAILY RIVER STAGE (FEET)
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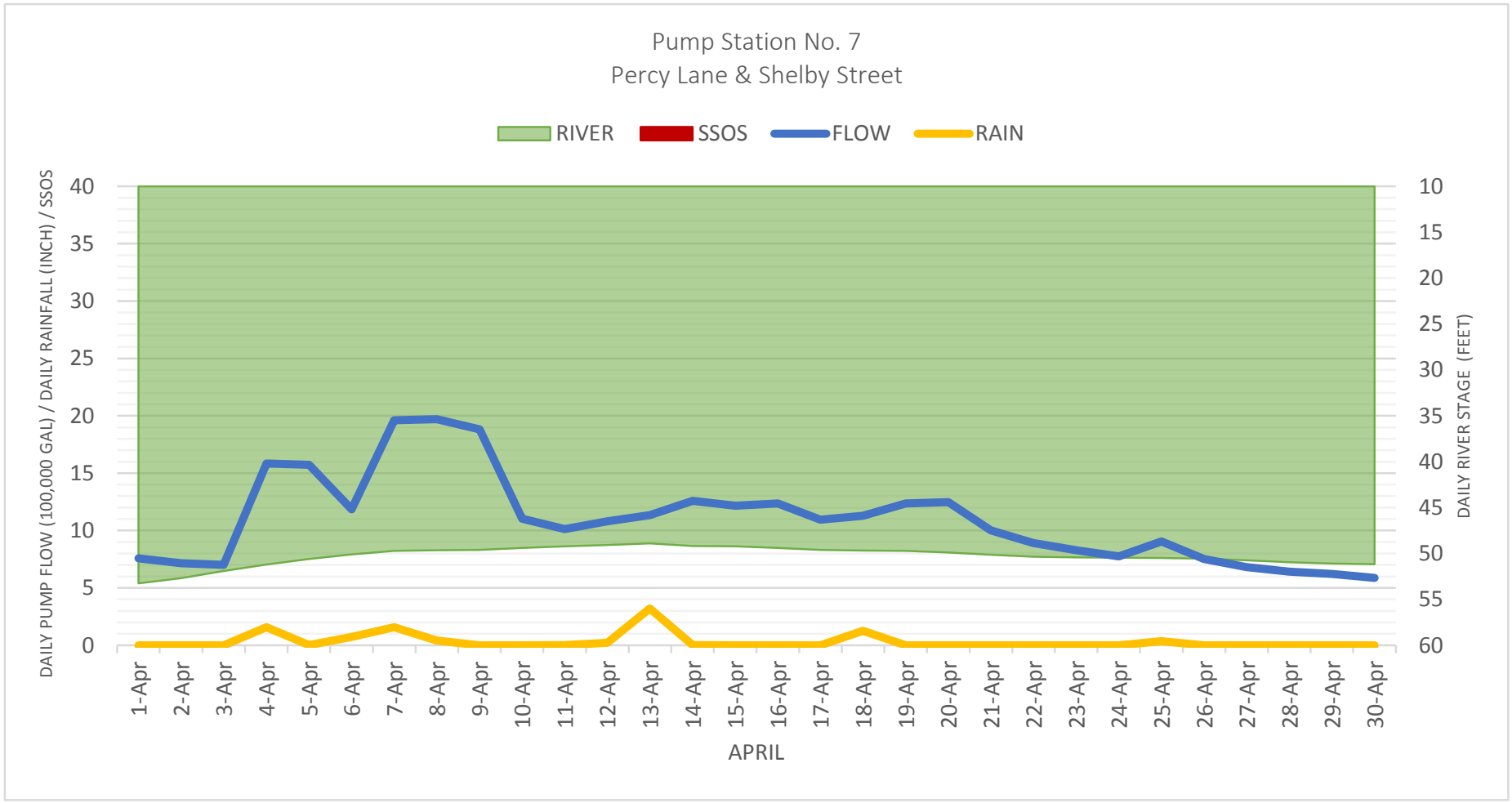
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Percy Lane & Shelby Street
RIVER
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FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
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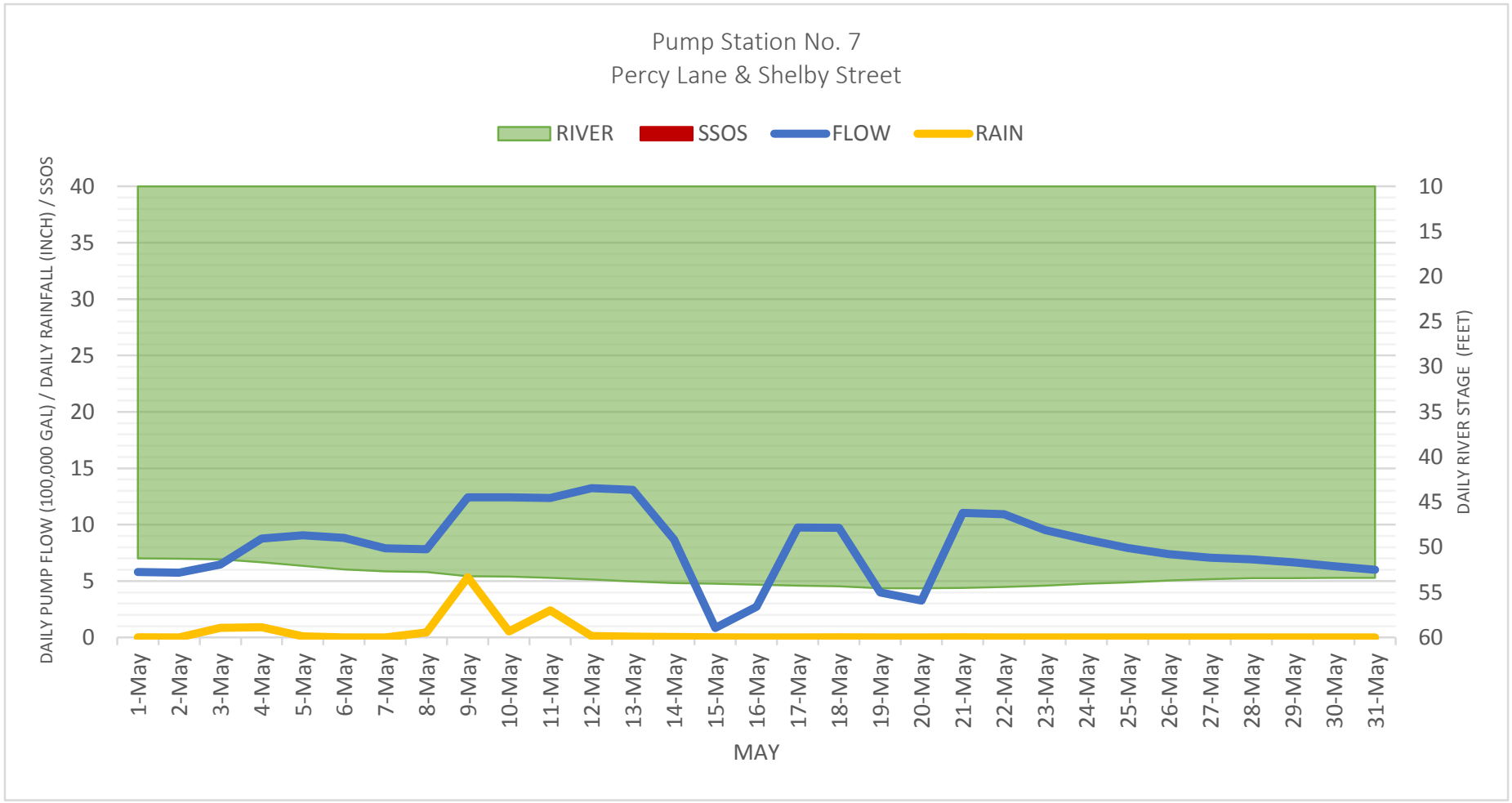
APRIL


Pump Station No. 7
Percy Lane & Shelby Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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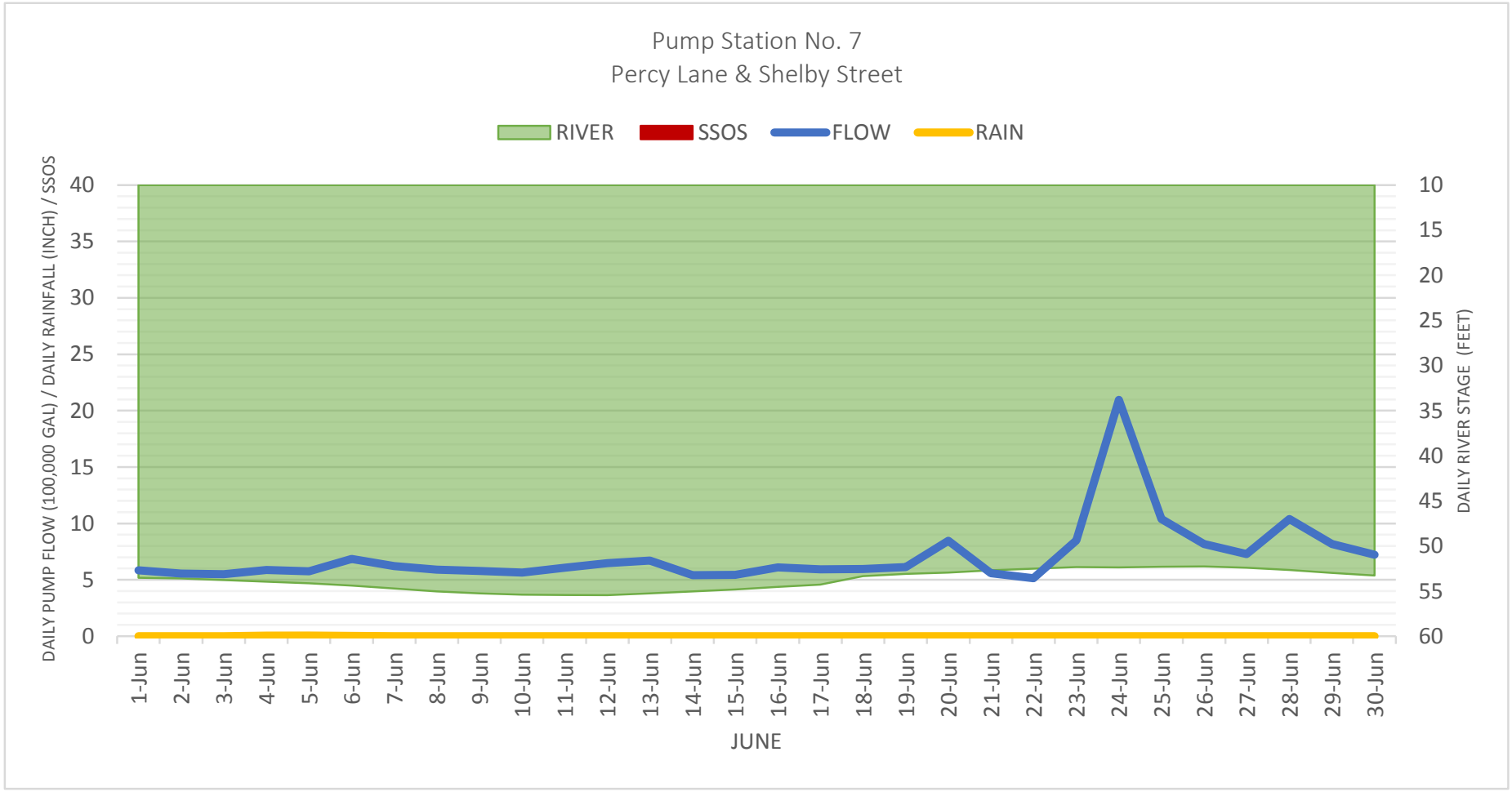
30-May
31-May
MAY


Pump Station No. 7
Percy Lane & Shelby Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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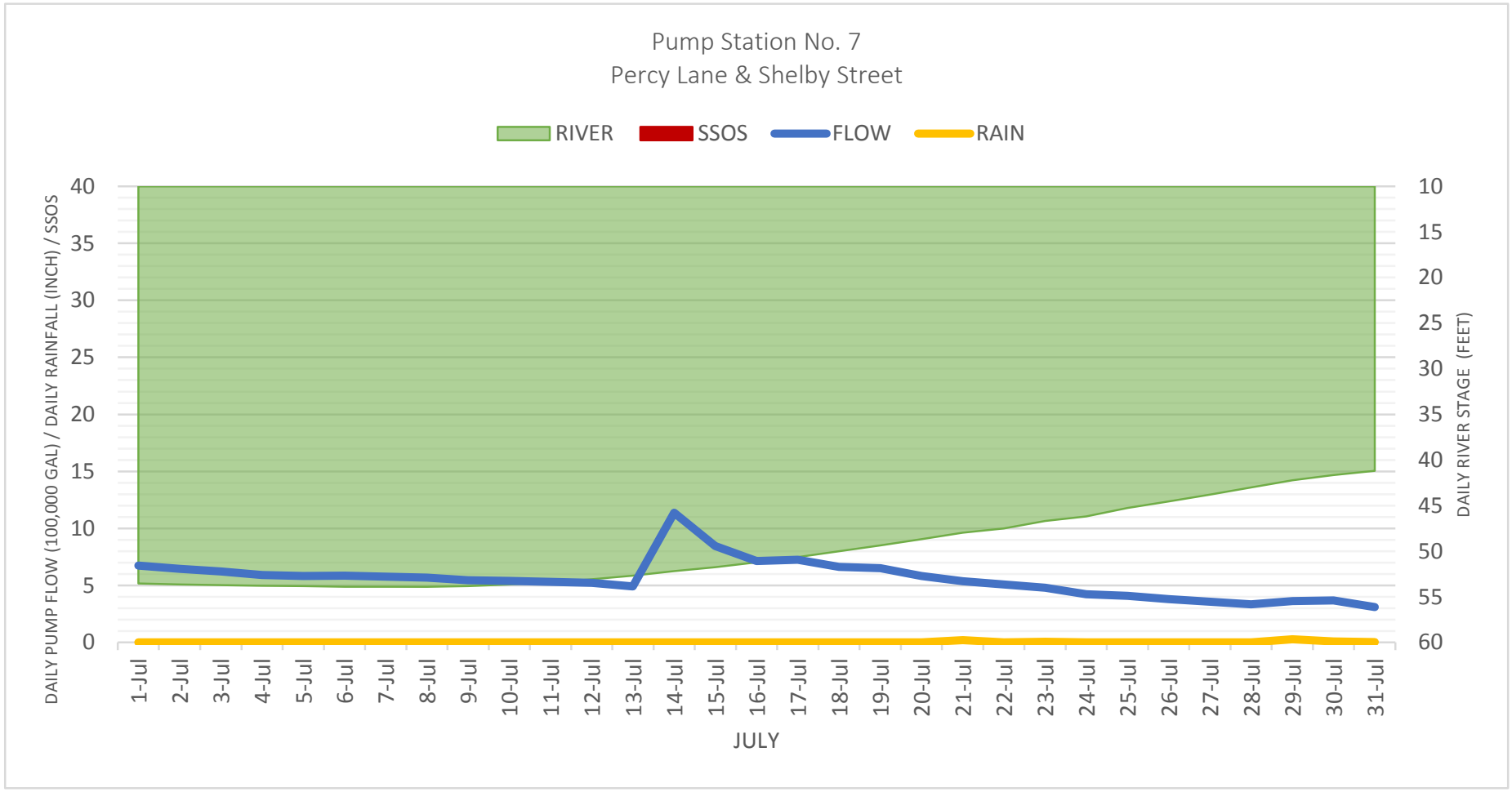
JUNE


Pump Station No. 7
Percy Lane & Shelby Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
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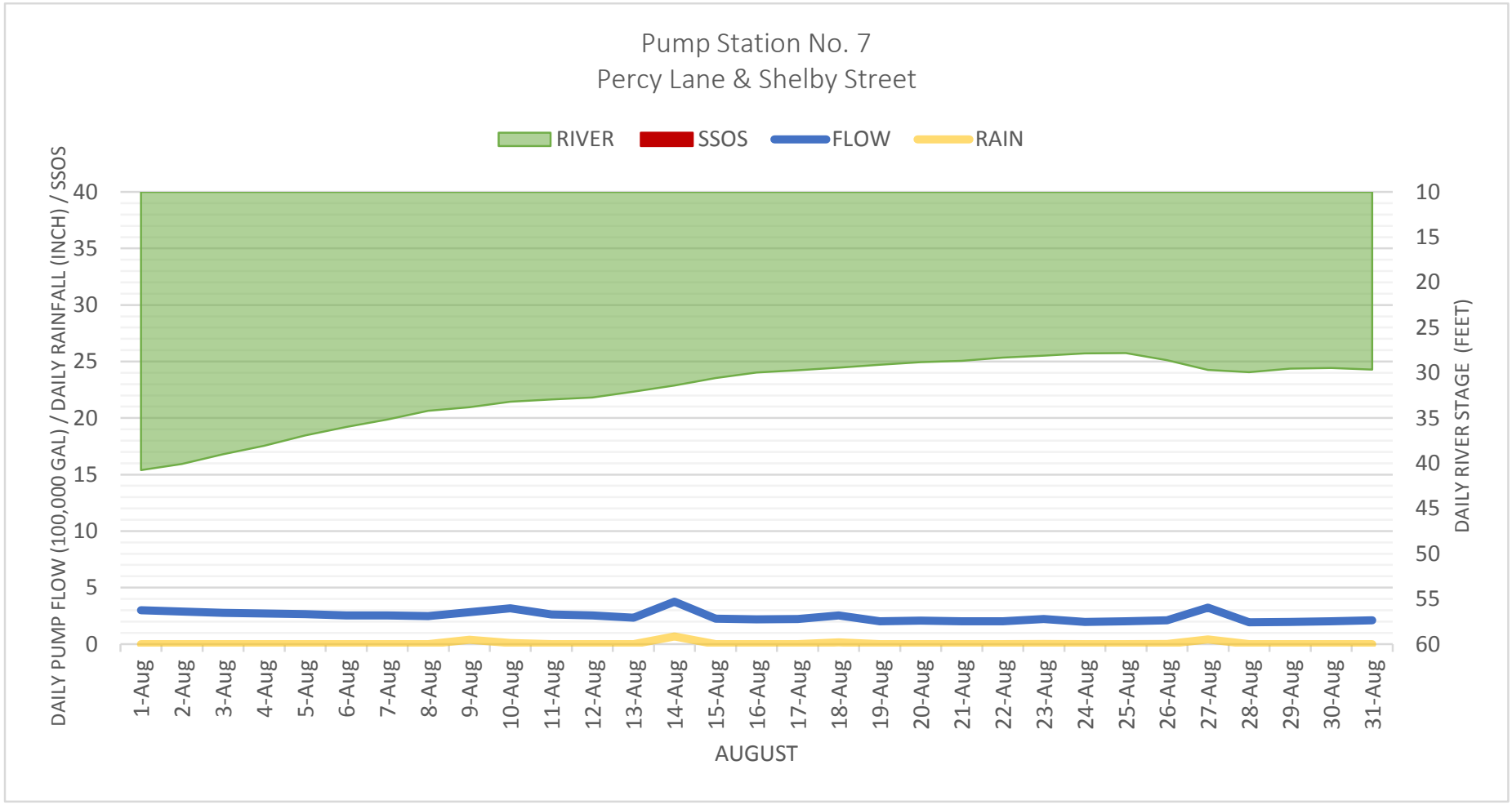
JULY


Pump Station No. 7
Percy Lane & Shelby Street
RIVER
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RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
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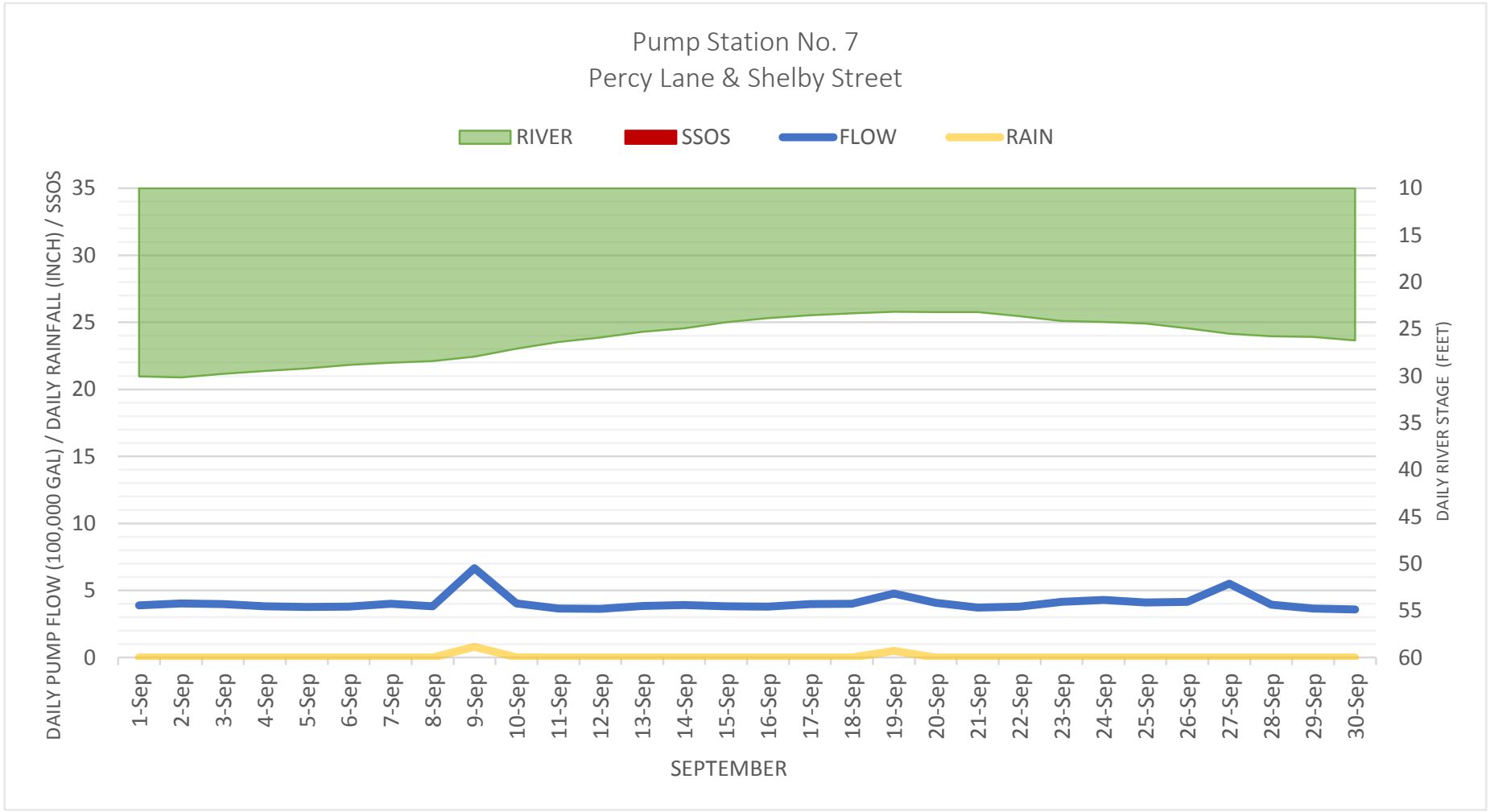
AUGUST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Percy Lane & Shelby Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
35
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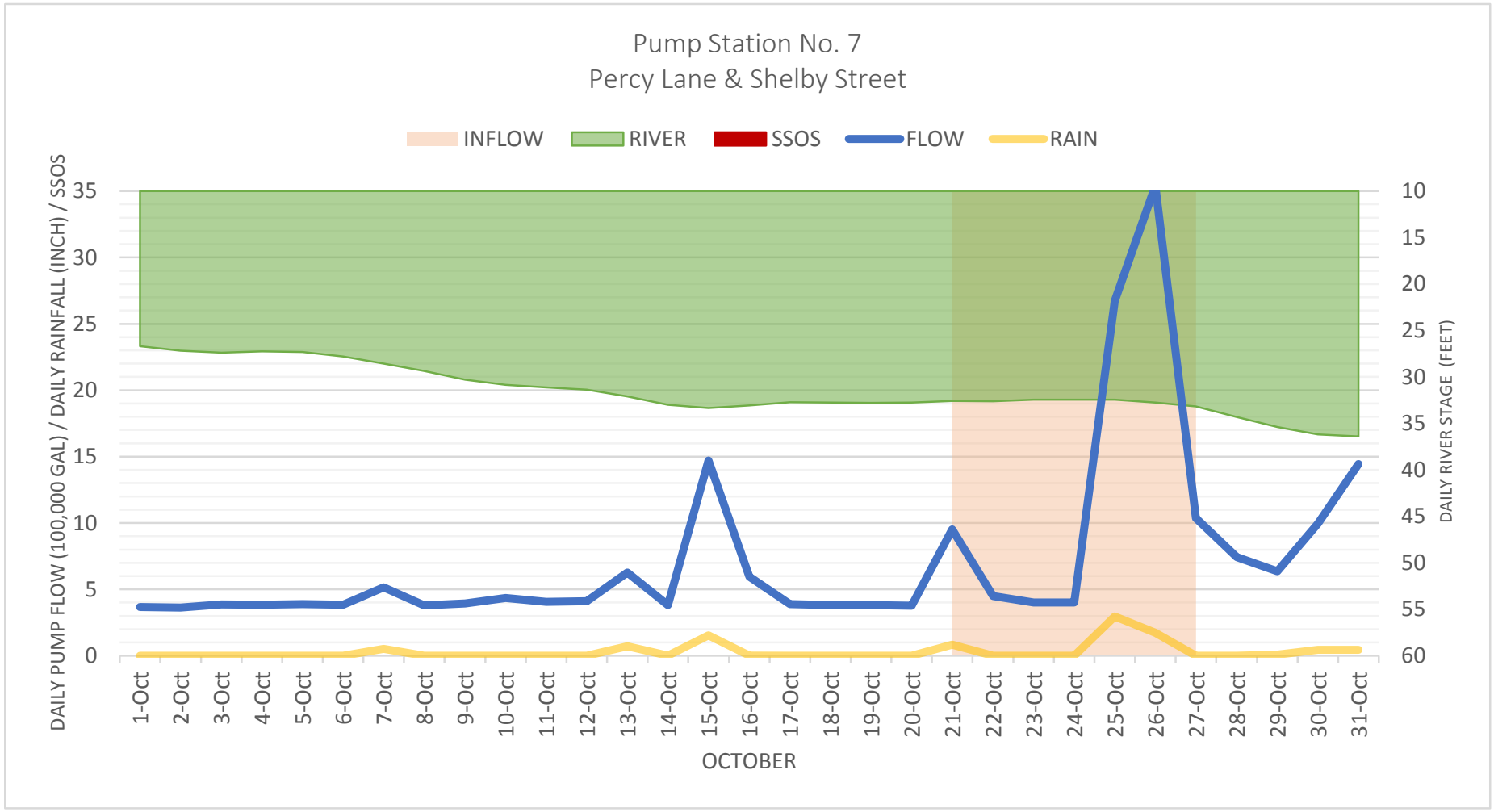
SEPTEMBER


Pump Station No. 7
Percy Lane & Shelby Street
INFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
0
5
10
15
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25
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35
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25
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45
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55
60
1-Oct
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29-Oct
30-Oct
31-Oct
OCTOBER

APPENDIX 5

MS6/PS13 I/I WORKSHEET

MS6/PS13
INFLOW & INFILTRATION WORKSHEET

Infiltration

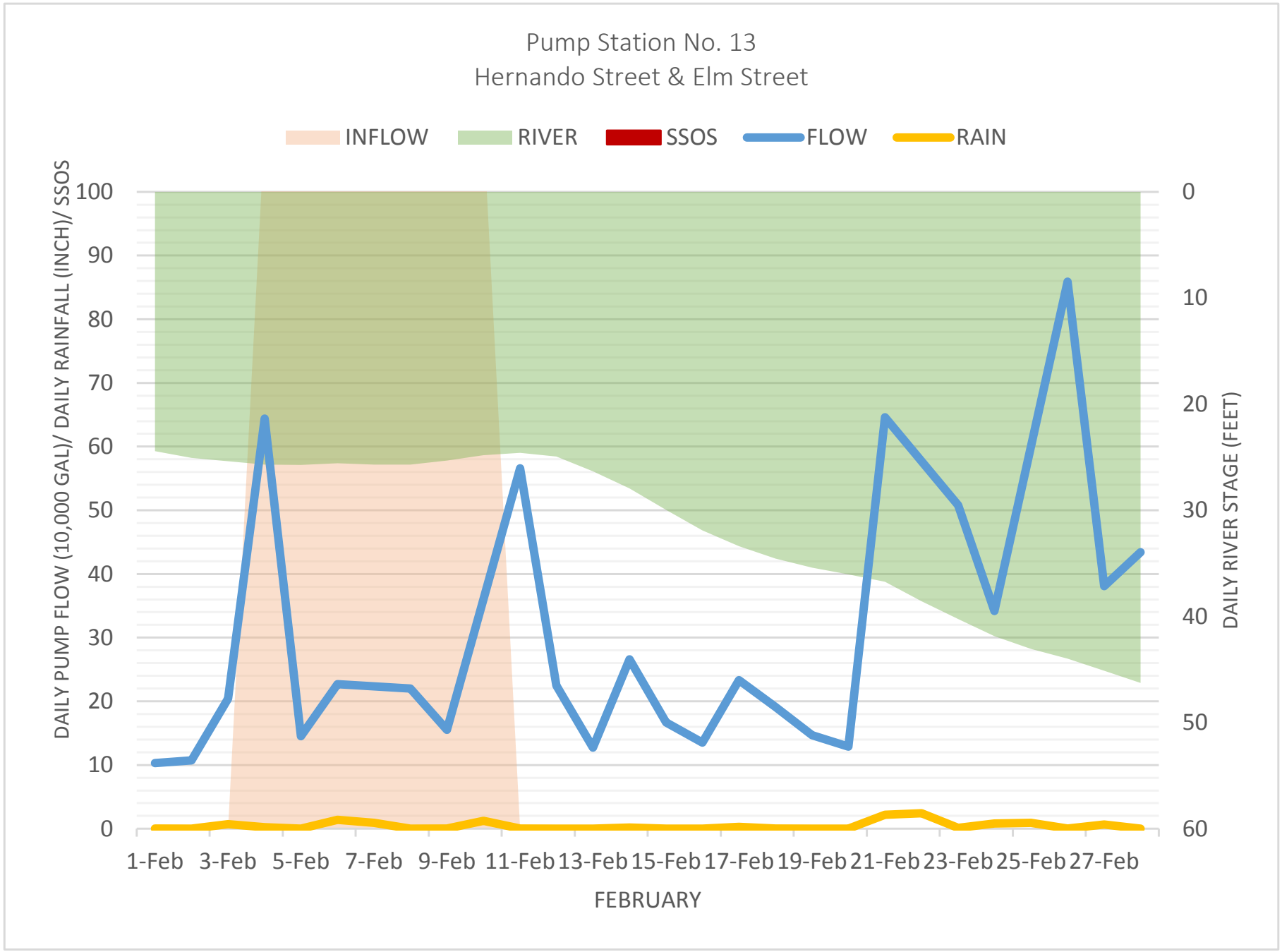
	feet	miles	diameter	inch-miles	
10" GRAVITY	634	0.12	10	1.200758	
8" gravity	29577	5.60	8.00	44.81364	
4" laterals	9555	1.81	4	7.238636	
TOTAL PIPE	39766			**53.25303**	**total inch-miles in system**
		maximum average infiltration	inch-miles		
		100,571.4286	53.25	**1888.558**	**total gpd/idm**

Inflow

	feet	miles	diameter	inch-miles	
10" GRAVITY	634	0.12	10	1.200758	
8" gravity	29577	5.60	8.00	44.81364	
4" laterals	9555	1.81	4	7.238636	
total pipe	39766			**53.25303**	**total inch-miles in system**
		maximum average inflow	inch-miles		
		497,857.1429	53.25	**9348.898**	**total gpd/idm**

APPENDIX 6

MS6/PS13 GRAPHS


Pump Station No. 13
Hernando Street & Elm Street
INFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL)/ DAILY RAINFALL (INCH)/ SSOS
DAILY RIVER STAGE (FEET)
100
90
80
70
60
50
40
30
20
10
0
0
10
20
30
40
50
60
1-Feb
3-Feb
5-Feb
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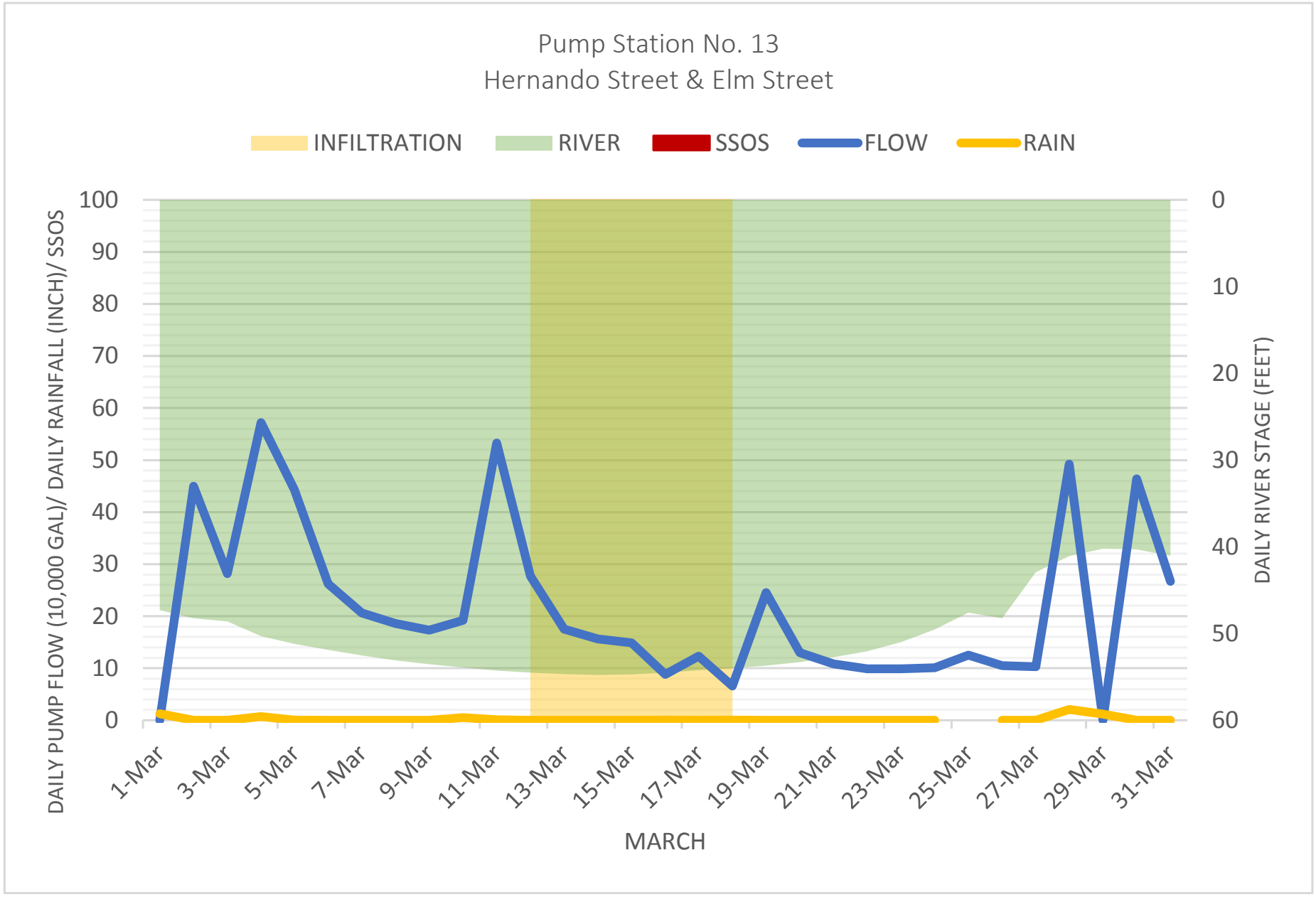
19-Feb
21-Feb
23-Feb
25-Feb
27-Feb
FEBRUARY


Pump Station No. 13
Hernando Street & Elm Street
INFILTRATION
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL)/ DAILY RAINFALL (INCH)/ SSOS
DAILY RIVER STAGE (FEET)
100
90
80
70
60
50
40
30
20
10
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0
10
20
30
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1-Mar
3-Mar
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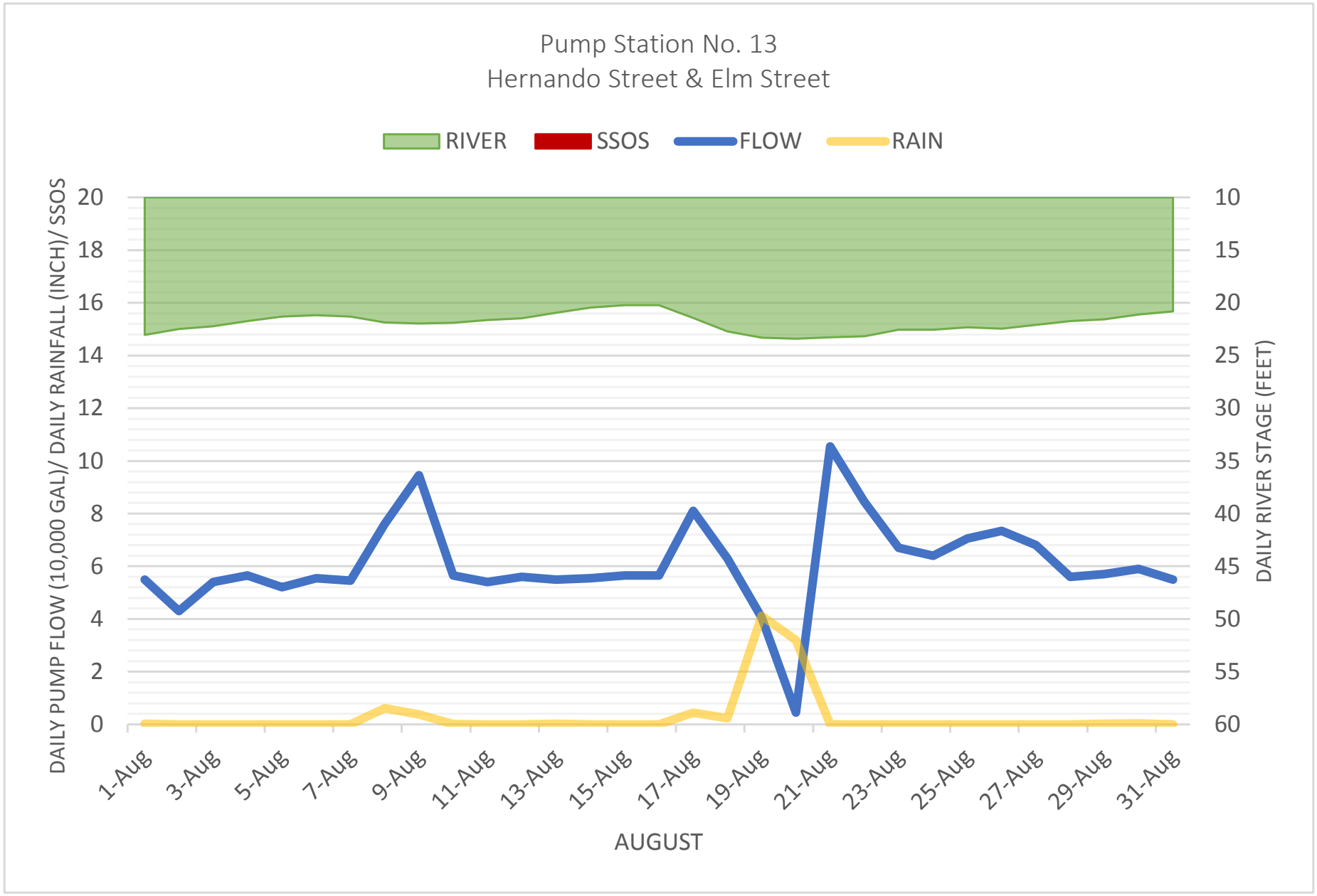
MARCH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Hernando Street & Elm Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL)/ DAILY RAINFALL (INCH)/ SSOS
DAILY RIVER STAGE (FEET)
20
18
16
14
12
10
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6
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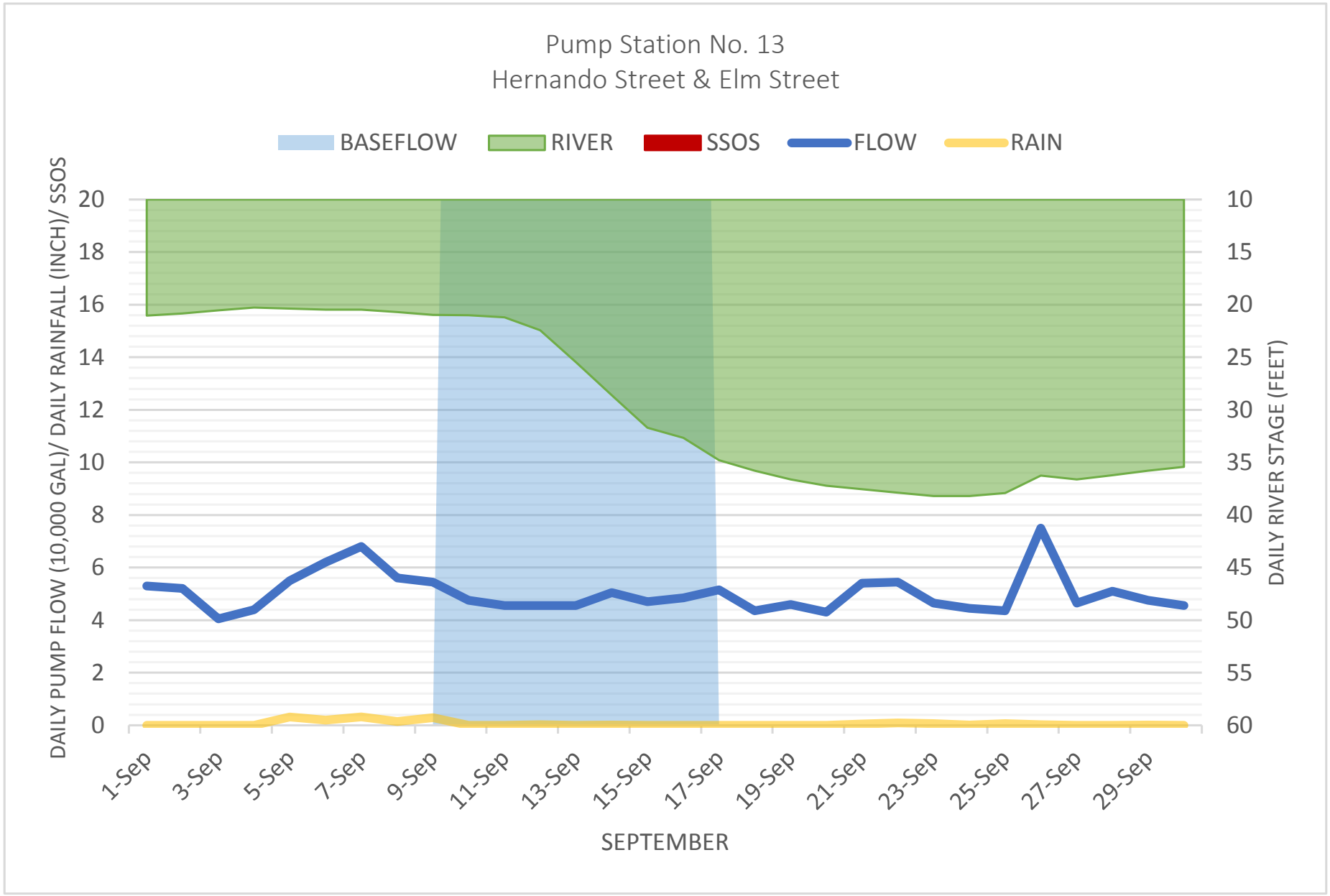
AUGUST


Pump Station No. 13
Hernando Street & Elm Street
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL)/ DAILY RAINFALL (INCH)/ SSOS
DAILY RIVER STAGE (FEET)
20
18
16
14
12
10
8
6
4
2
0
10
15
20
25
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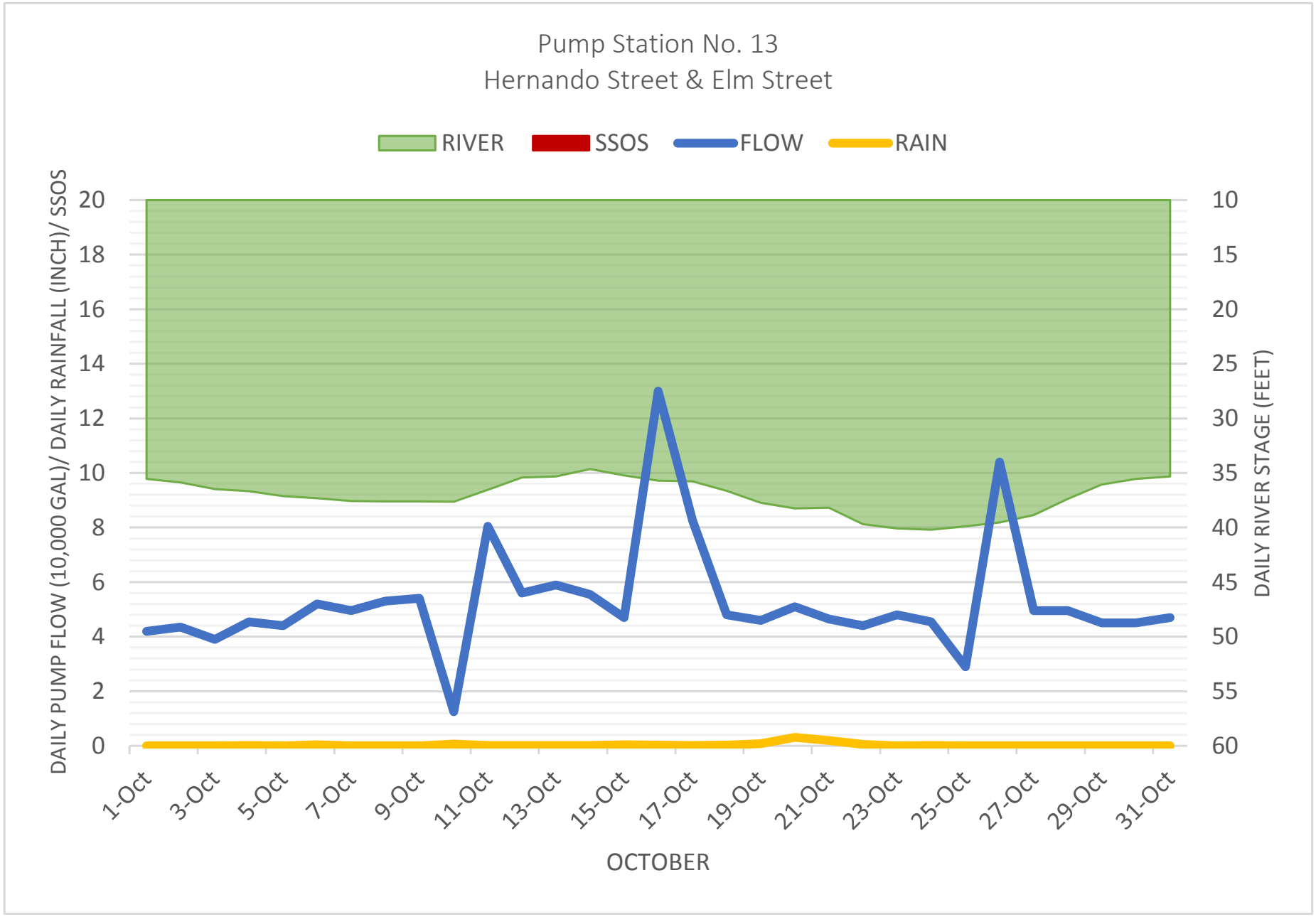
SEPTEMBER


Pump Station No. 13
Hernando Street & Elm Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL)/ DAILY RAINFALL (INCH)/ SSOS
DAILY RIVER STAGE (FEET)
20
18
16
14
12
10
8
6
4
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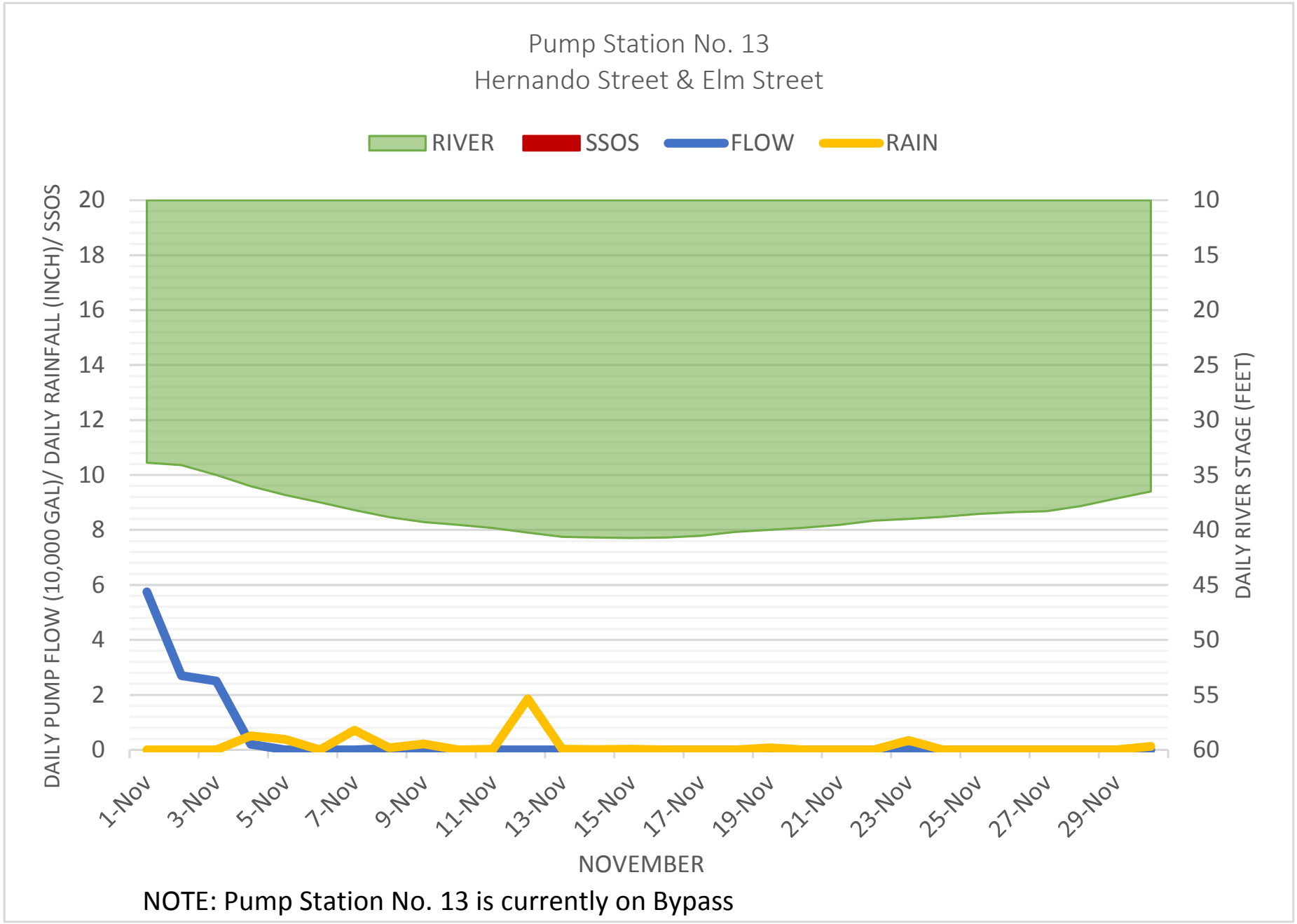
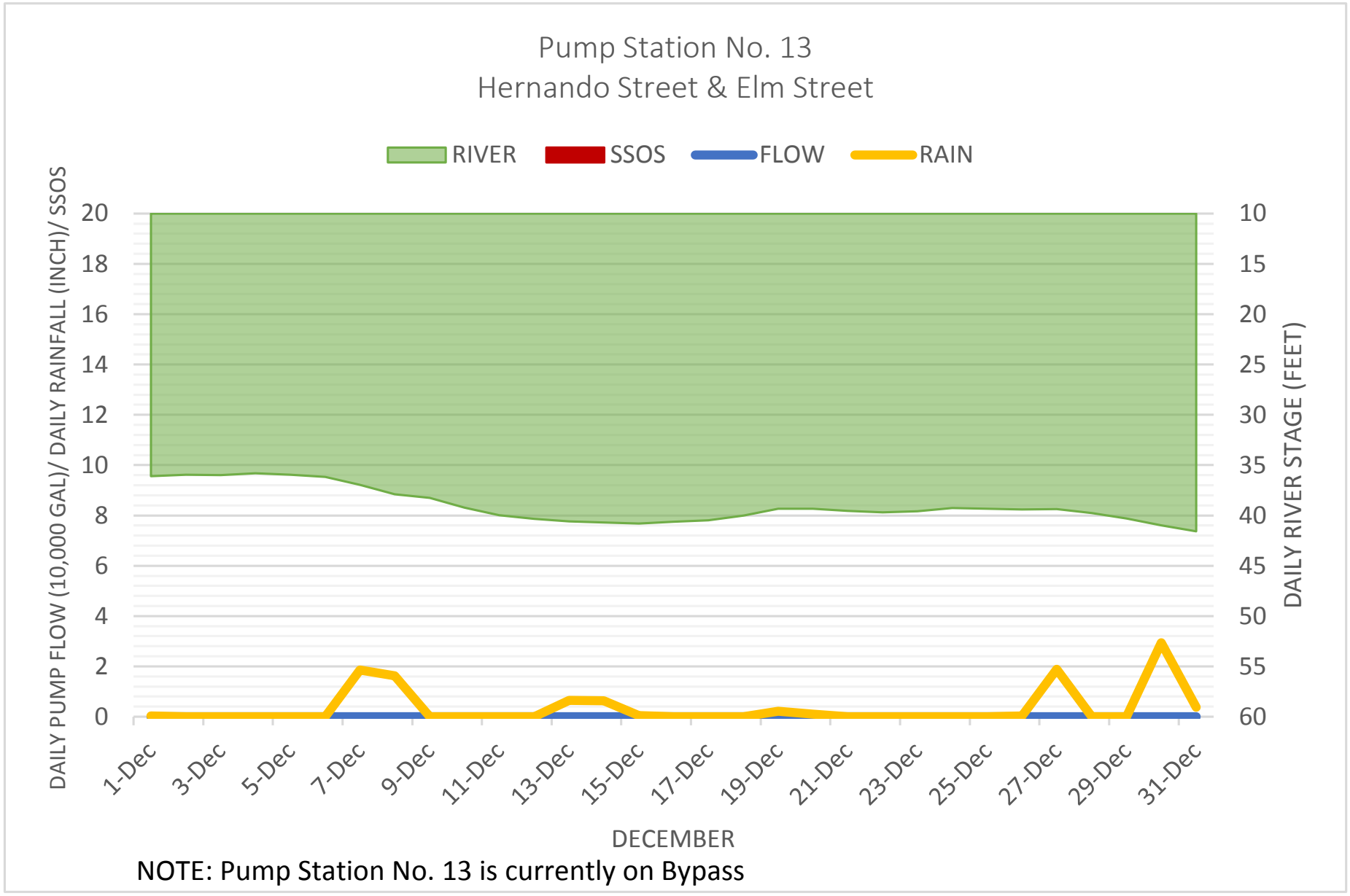
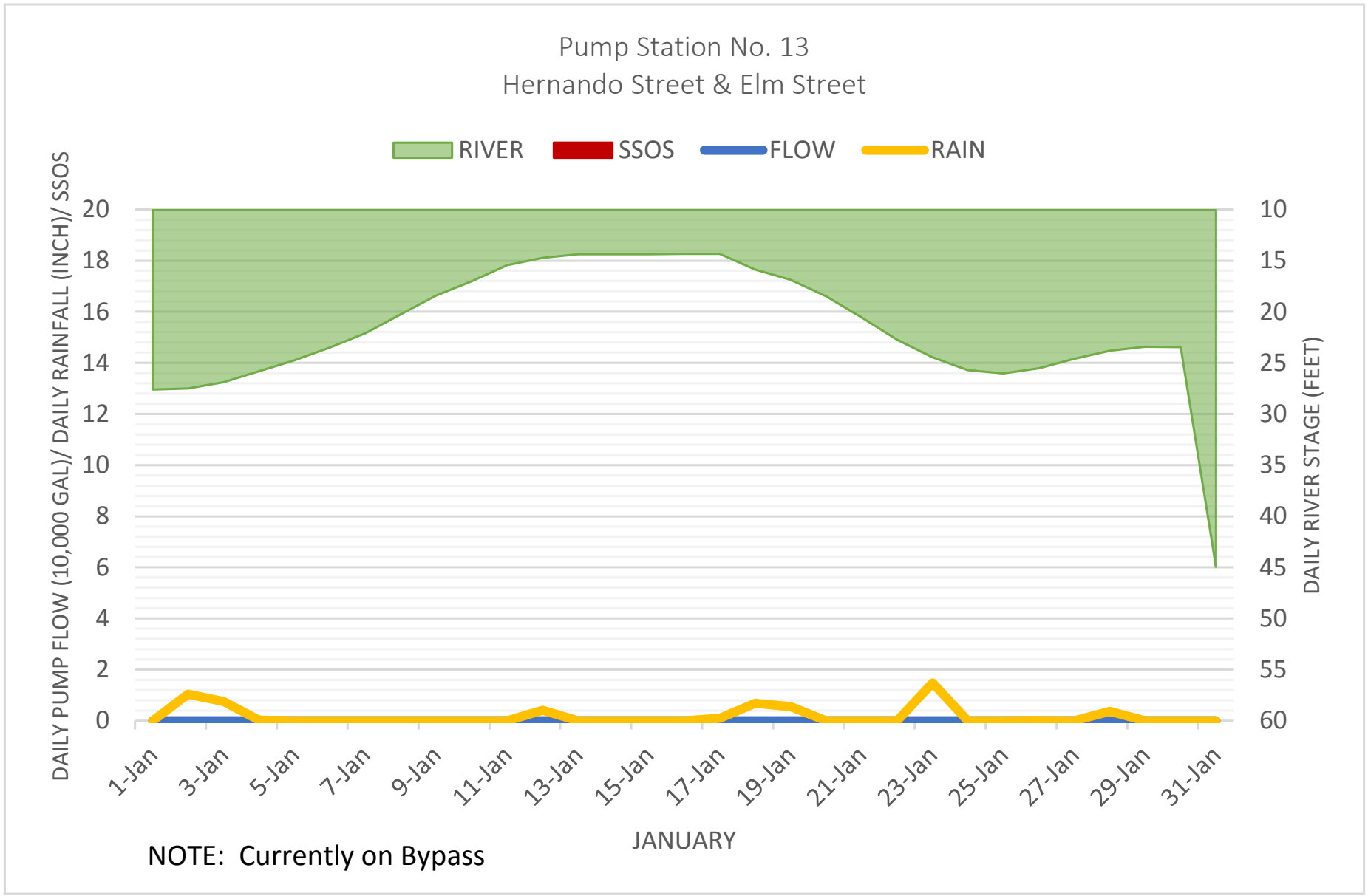
OCTOBER



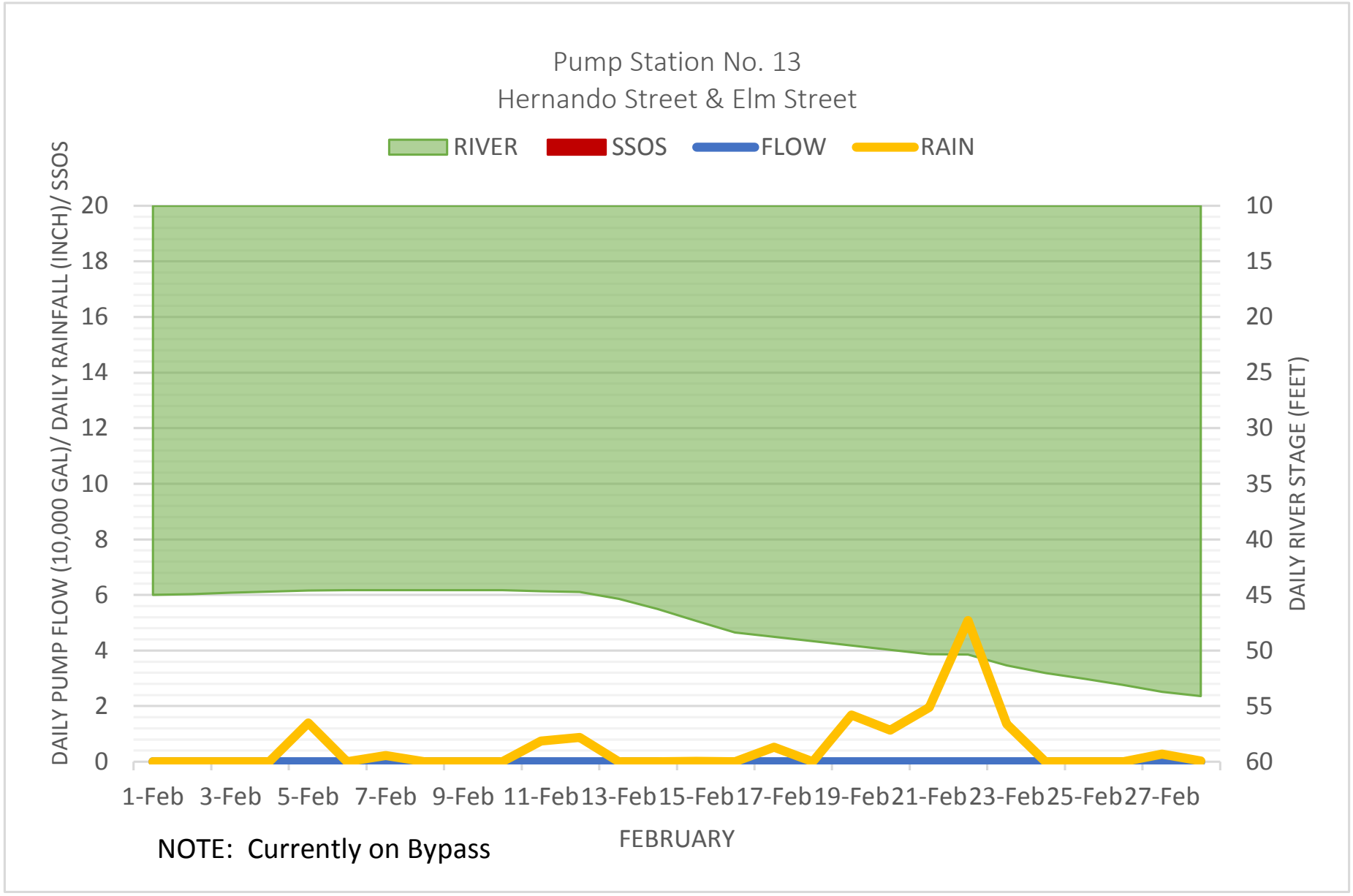
NOTE: Pump Station No. 13 is currently on Bypass



NOTE: Pump Station No. 13 is currently on Bypass



NOTE: Currently on Bypass


Pump Station No. 13
Hernando Street & Elm Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL)/ DAILY RAINFALL (INCH)/ SSOS
DAILY RIVER STAGE (FEET)
20
18
16
14
12
10
8
6
4
2
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1-Feb
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5-Feb
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15-Feb
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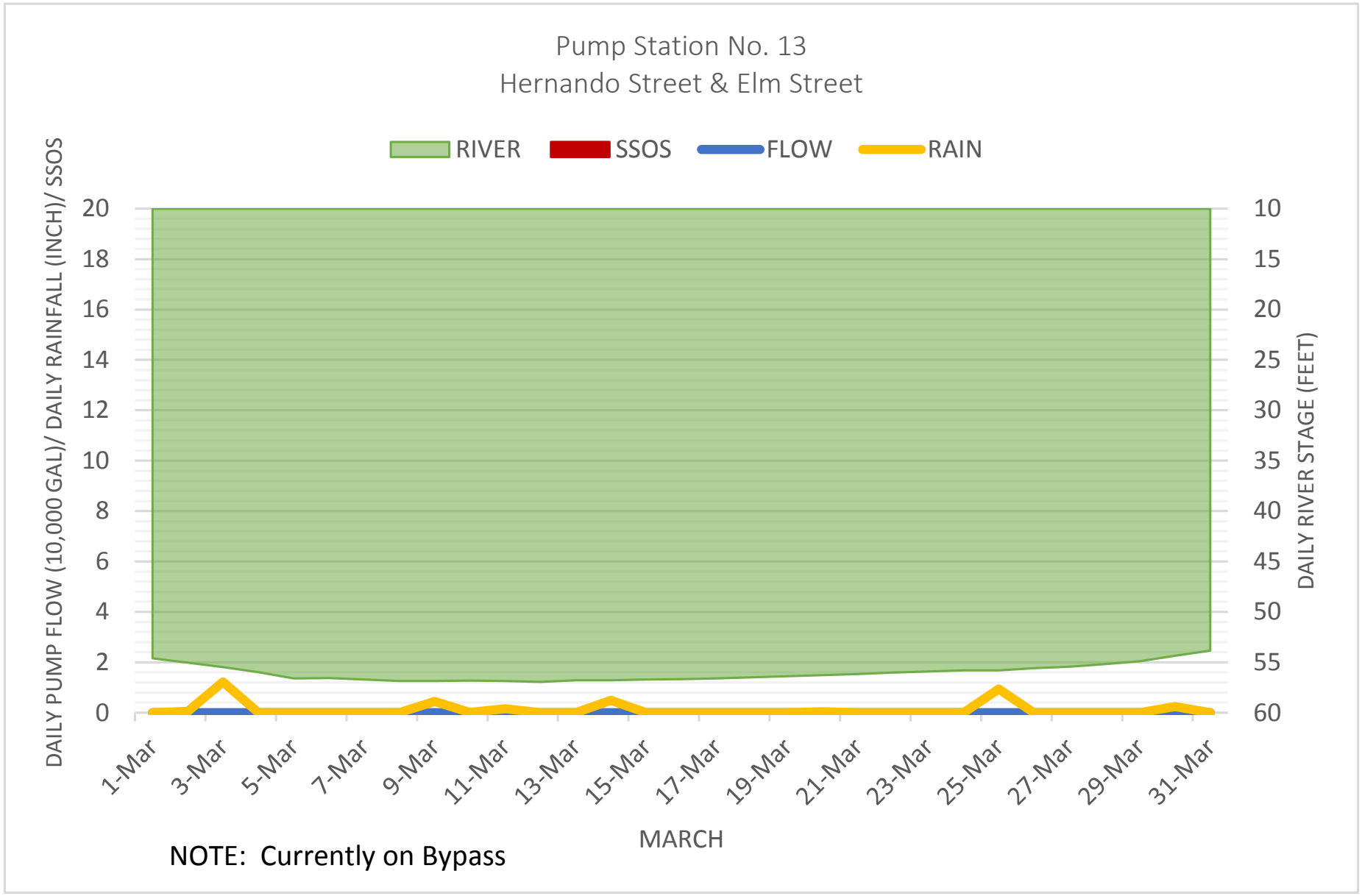
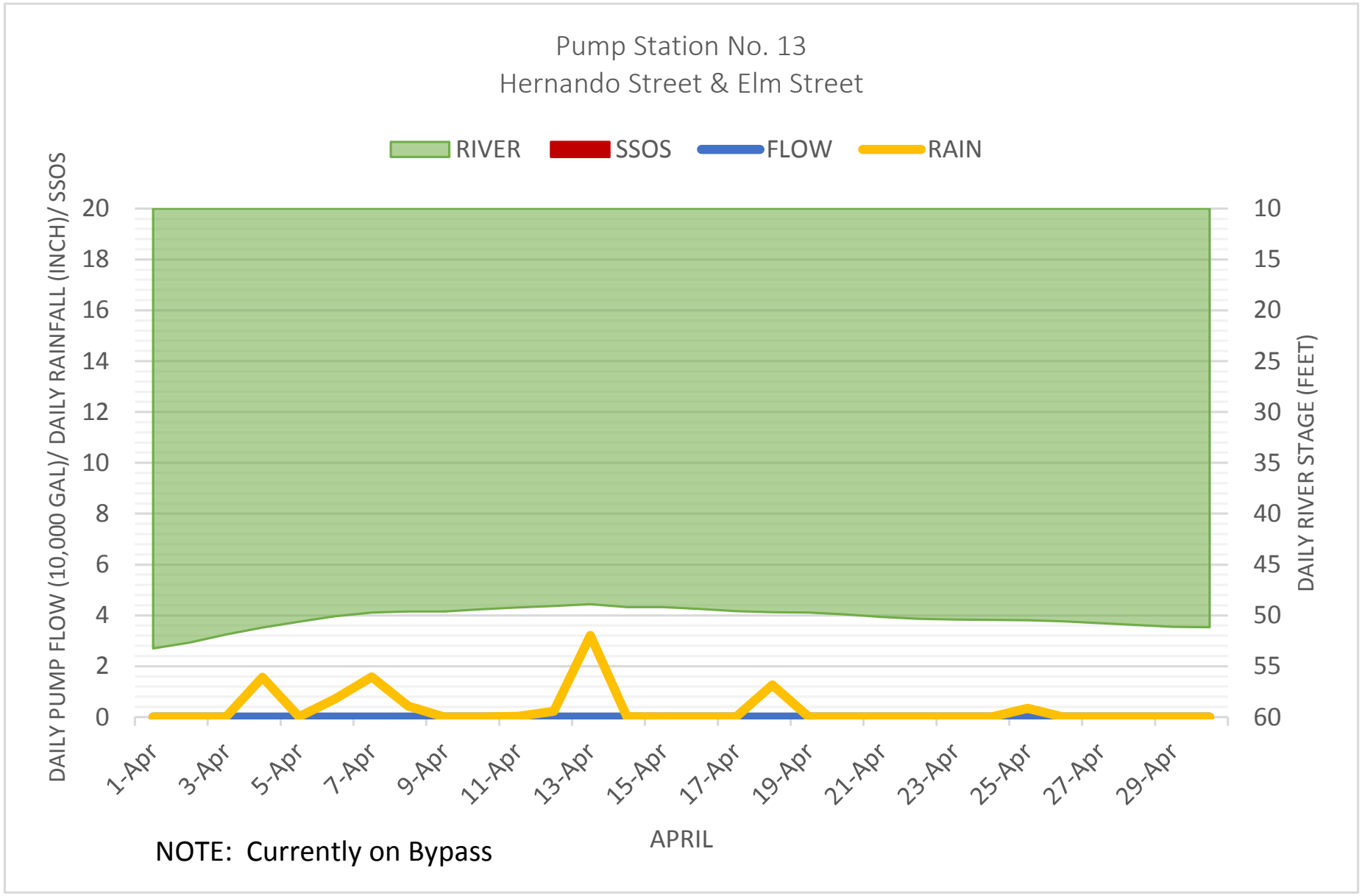
25-Feb
27-Feb
FEBRUARY
NOTE: Currently on Bypass



NOTE: Currently on Bypass


Pump Station No. 13
Hernando Street & Elm Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL)/ DAILY RAINFALL (INCH)/ SSOS
DAILY RIVER STAGE (FEET)
20
18
16
14
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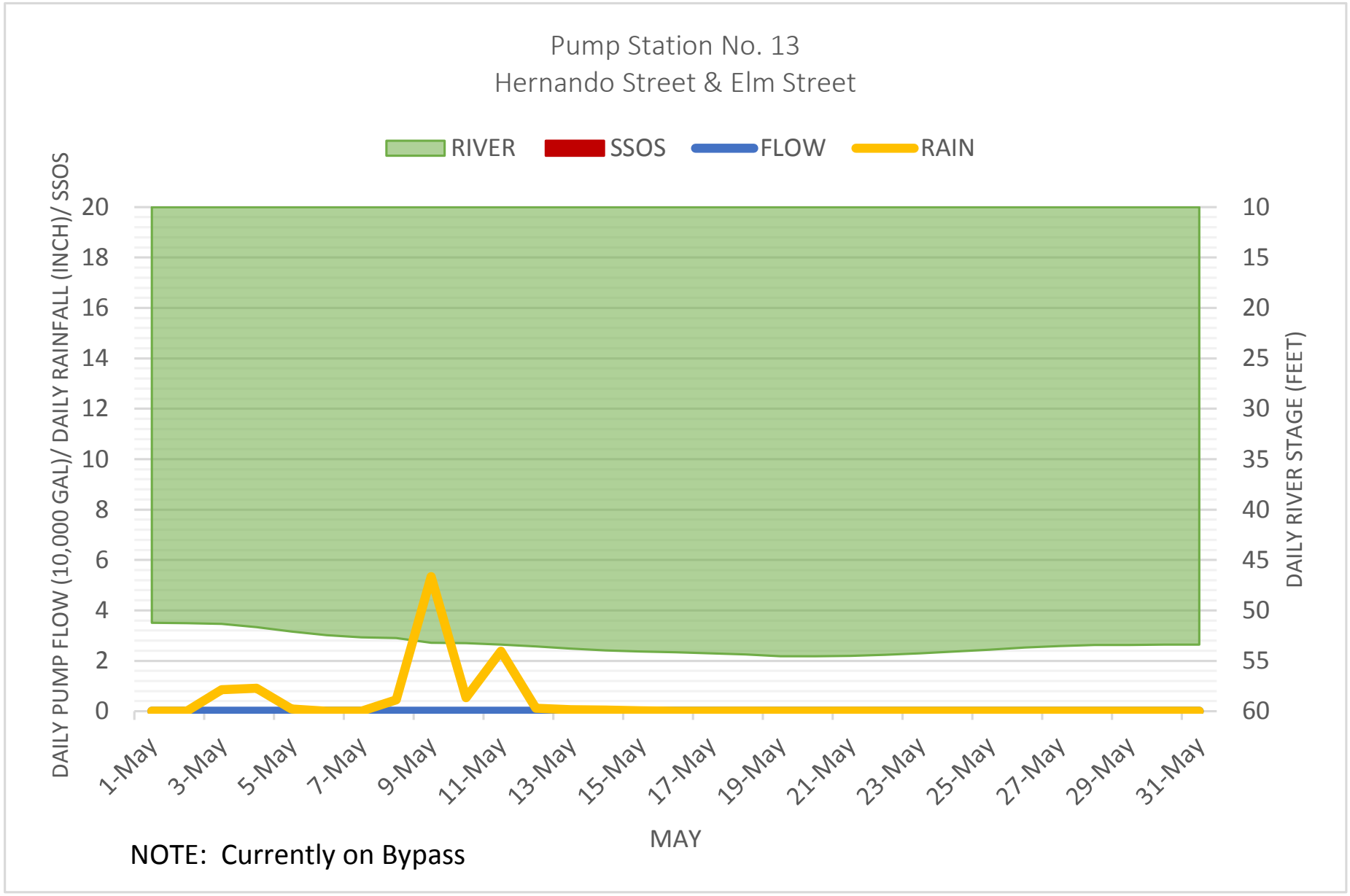
APRIL
NOTE: Currently on Bypass


Pump Station No. 13
Hernando Street & Elm Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL)/ DAILY RAINFALL (INCH)/ SSOS
DAILY RIVER STAGE (FEET)
20
18
16
14
12
10
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19-May
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23-May
25-May
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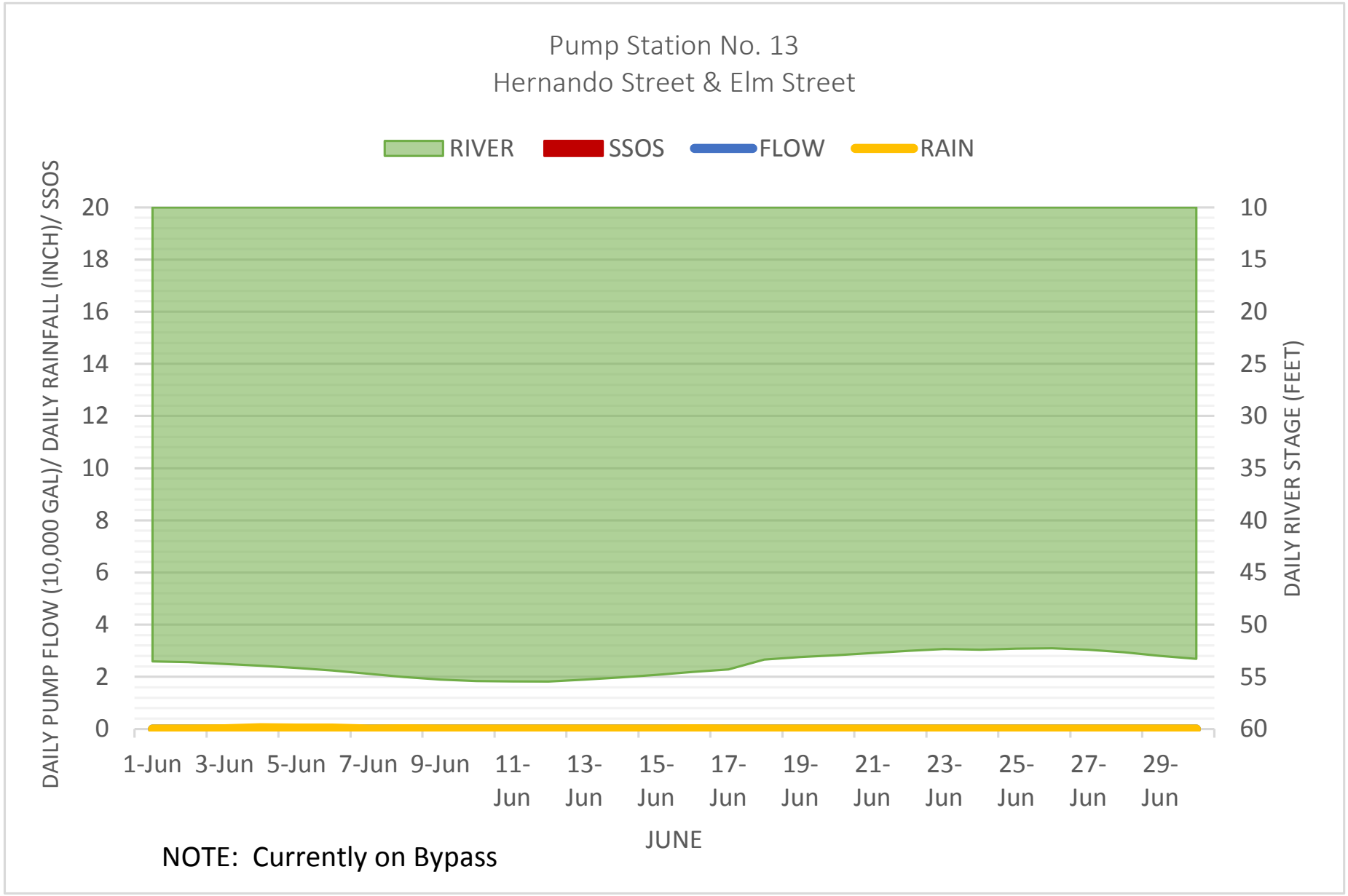
31-May
MAY
NOTE: Currently on Bypass



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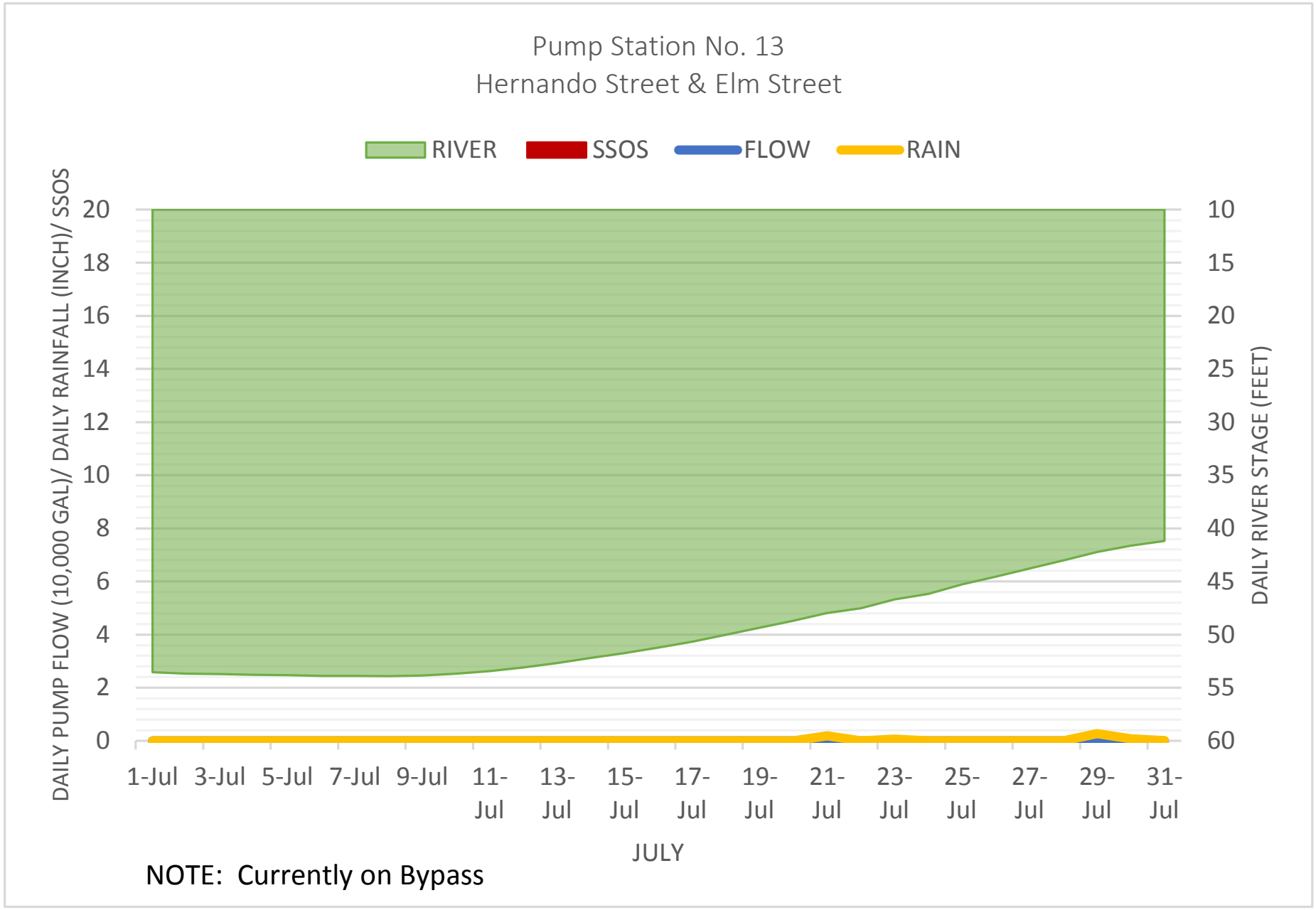
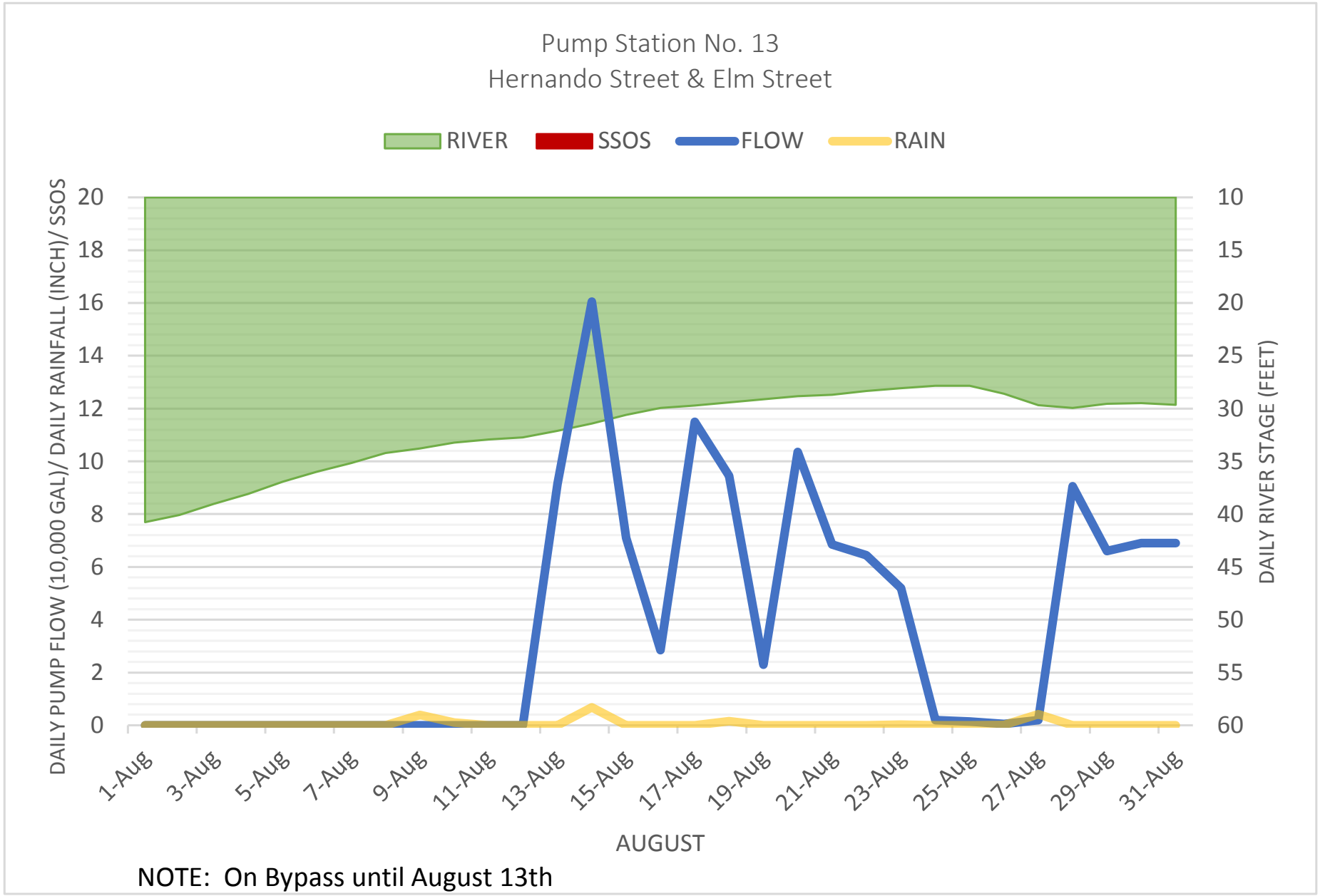


NOTE: Currently on Bypass



NOTE: On Bypass until August 13th

APPENDIX 7

MS6/PS15 I/I WORKSHEET

MS6/PS15
INFLOW & INFILTRATION WORKSHEET

NO FLOW DATA AVAILABLE

APPENDIX 8

MS6/PS15 GRAPHS

APPENDIX 9

MS8/PS17 I//I WORKSHEET

MS8/PS17
INFLOW & INFILTRATION WORKSHEET

Infiltration

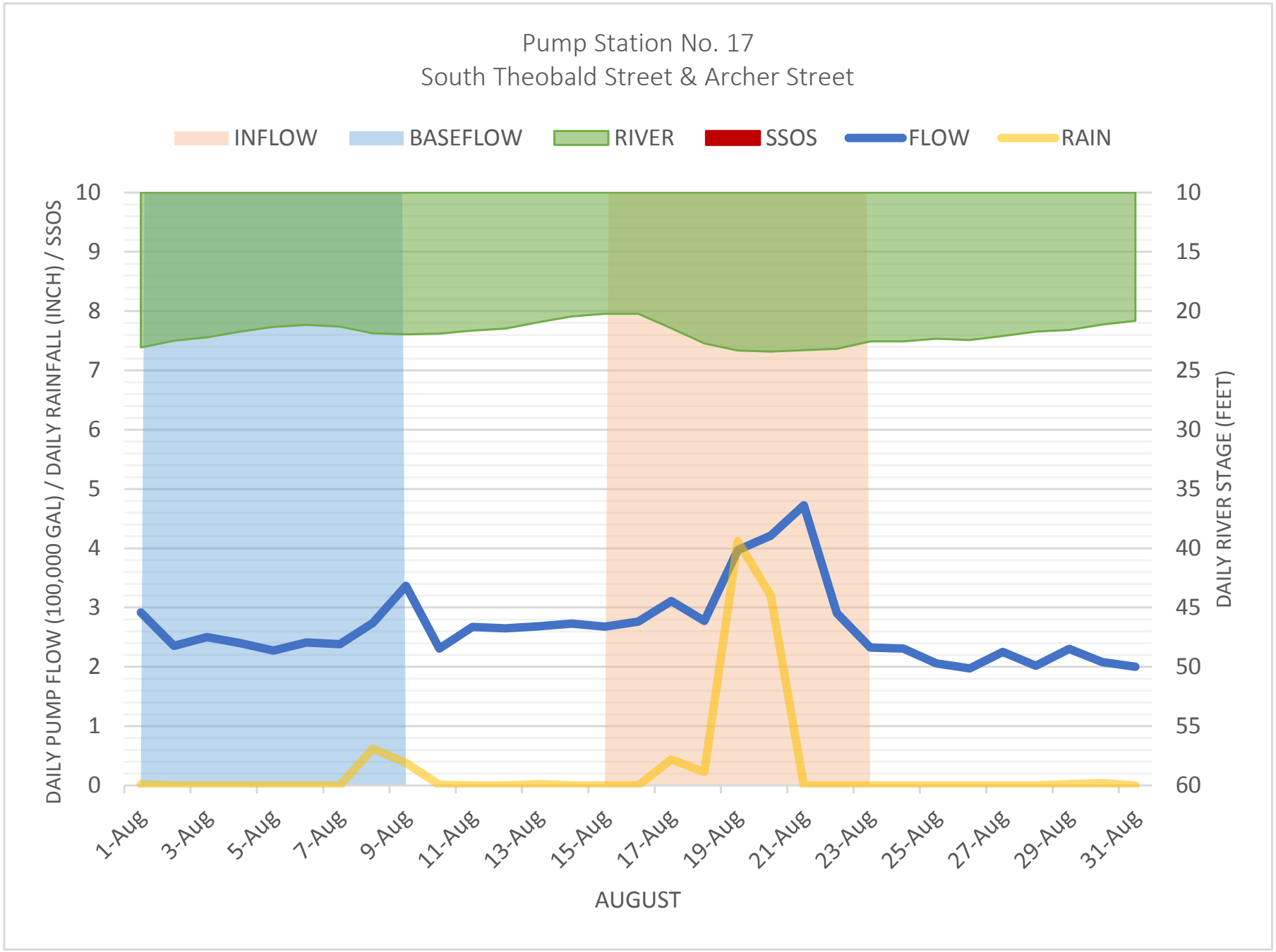
	feet	miles	diameter	inch-miles	
10" GRAVITY	1457	0.28	10	2.76	
8" gravity	13097	2.48	8	19.84	
4" laterals	8850	1.68	4.00	6.70	
TOTAL PIPE	14554			**29.31**	**total inch-miles in system**
		average maximum infiltration	inch-miles		
		331,214.2857	29.31	**11,301.17**	**total gpd/idm**

Inflow

	feet	miles	diameter	inch-miles	
10" GRAVITY	1457	0.28	10	2.76	
8" gravity	13097	2.48	8	19.84	
4" laterals	8850	1.68	4.00	6.70	
total pipe	14554			**29.31**	**total inch-miles in system**
		average maximum inflow	inch-miles		
		144,001.1429	29.31	**4,913.38**	**total gpd/idm**

APPENDIX 10

MS8/PS17 GRAPHS


Pump Station No. 17
South Theobald Street & Archer Street
INFLOW
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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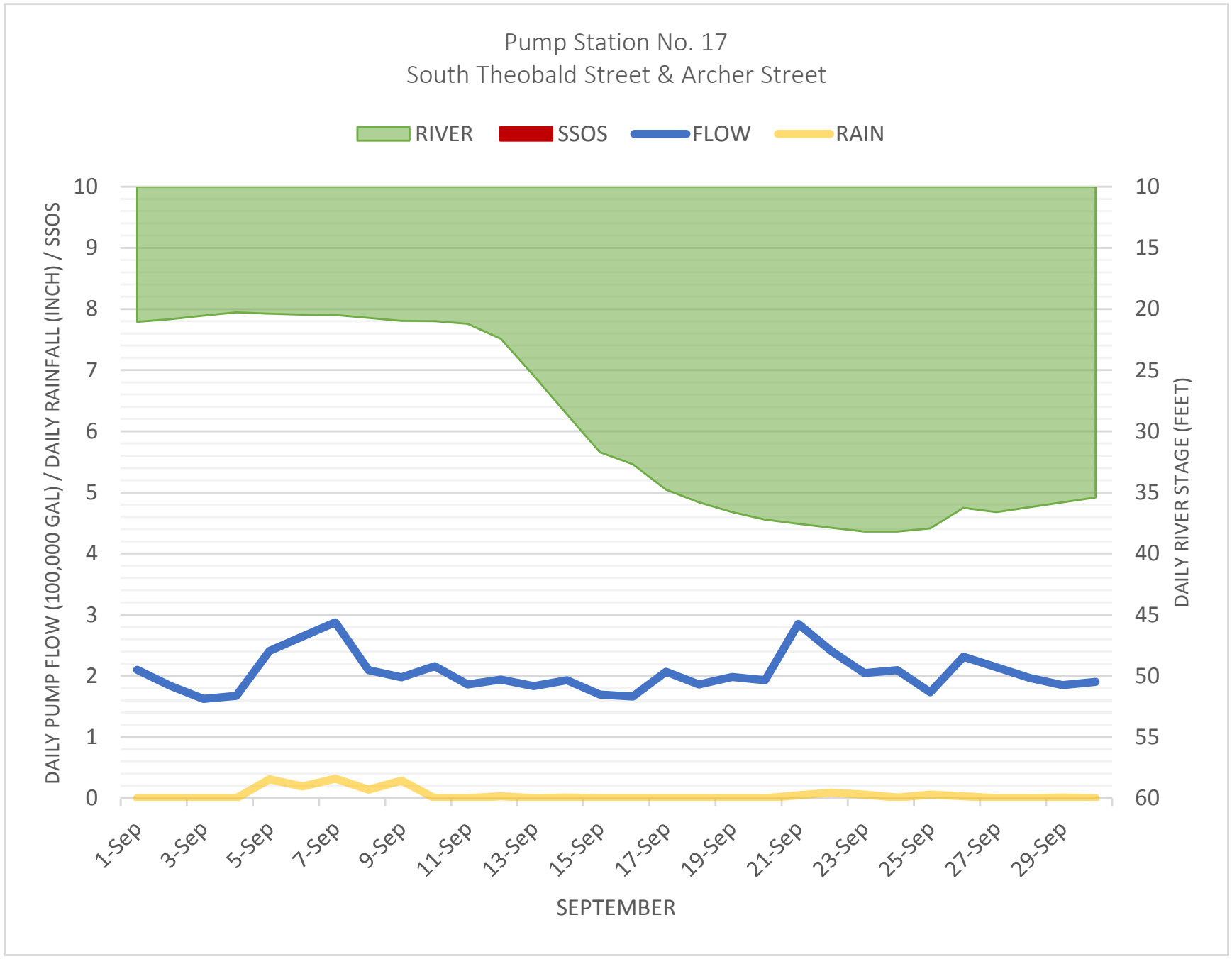
31-Aug
AUGUST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South Theobald Street & Archer Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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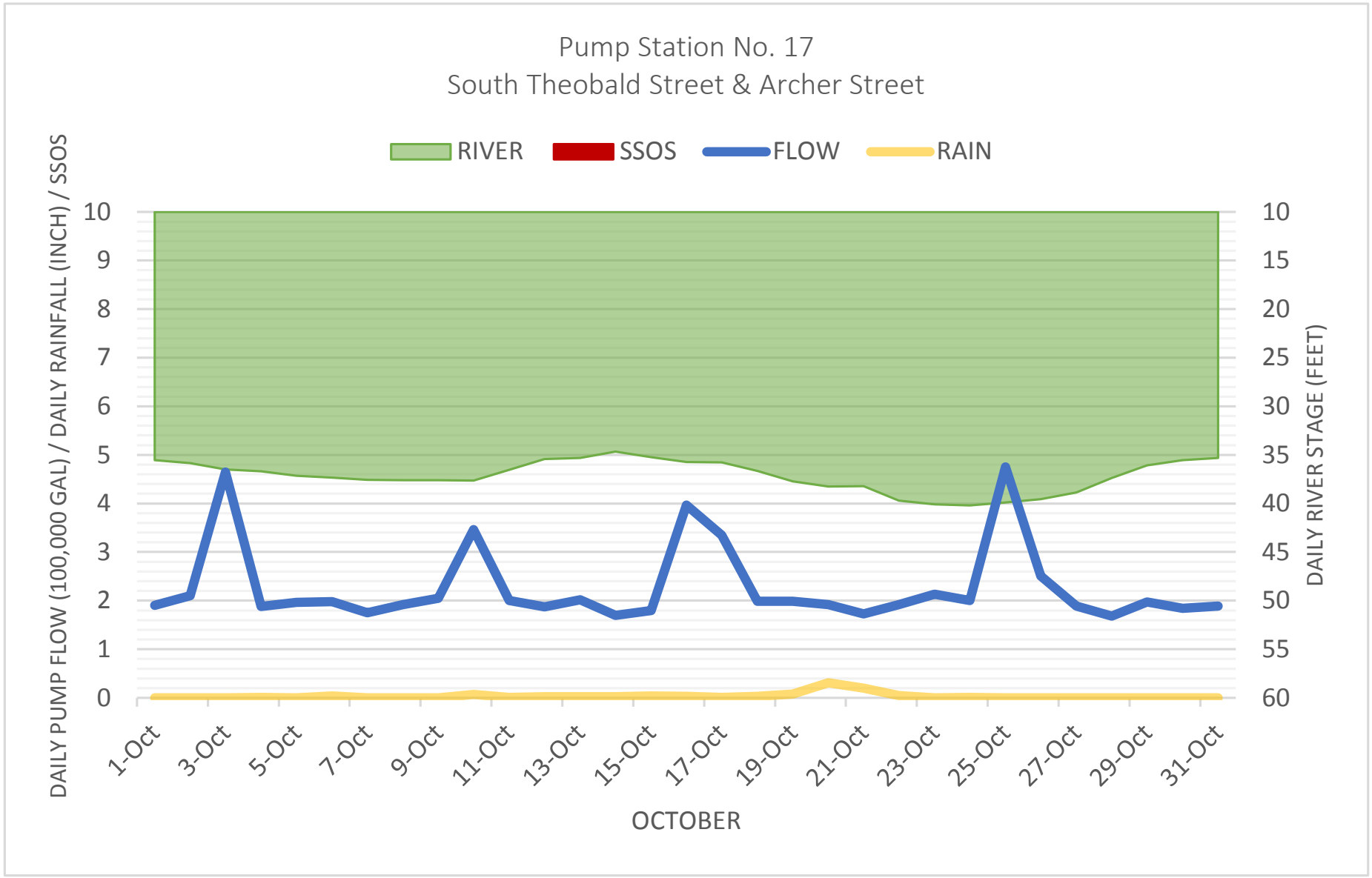
29-Sep
SEPTEMBER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South Theobald Street & Archer Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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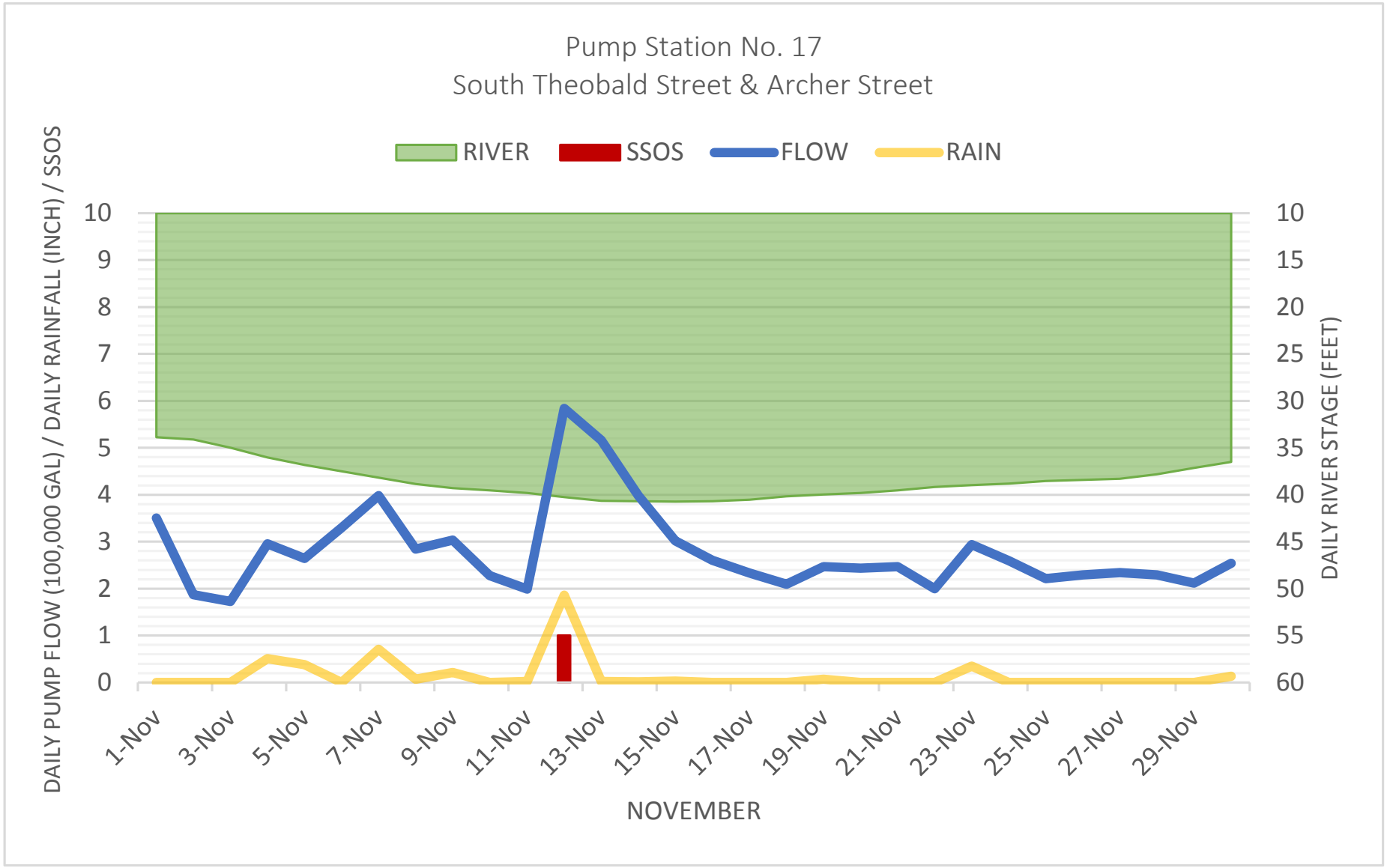
31-Oct
OCTOBER


Pump Station No. 17
South Theobald Street & Archer Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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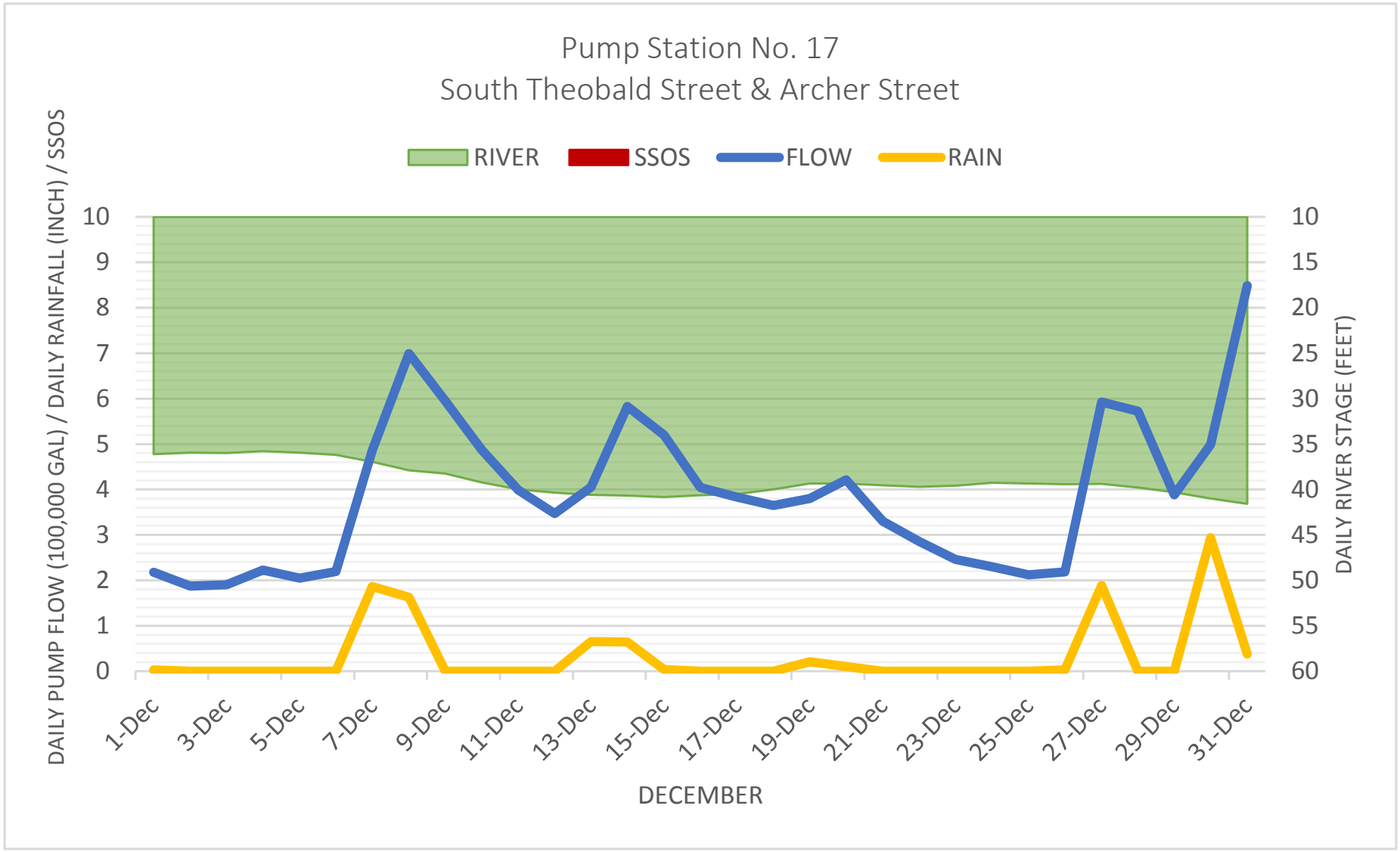
29-Nov
NOVEMBER


Pump Station No. 17
South Theobald Street & Archer Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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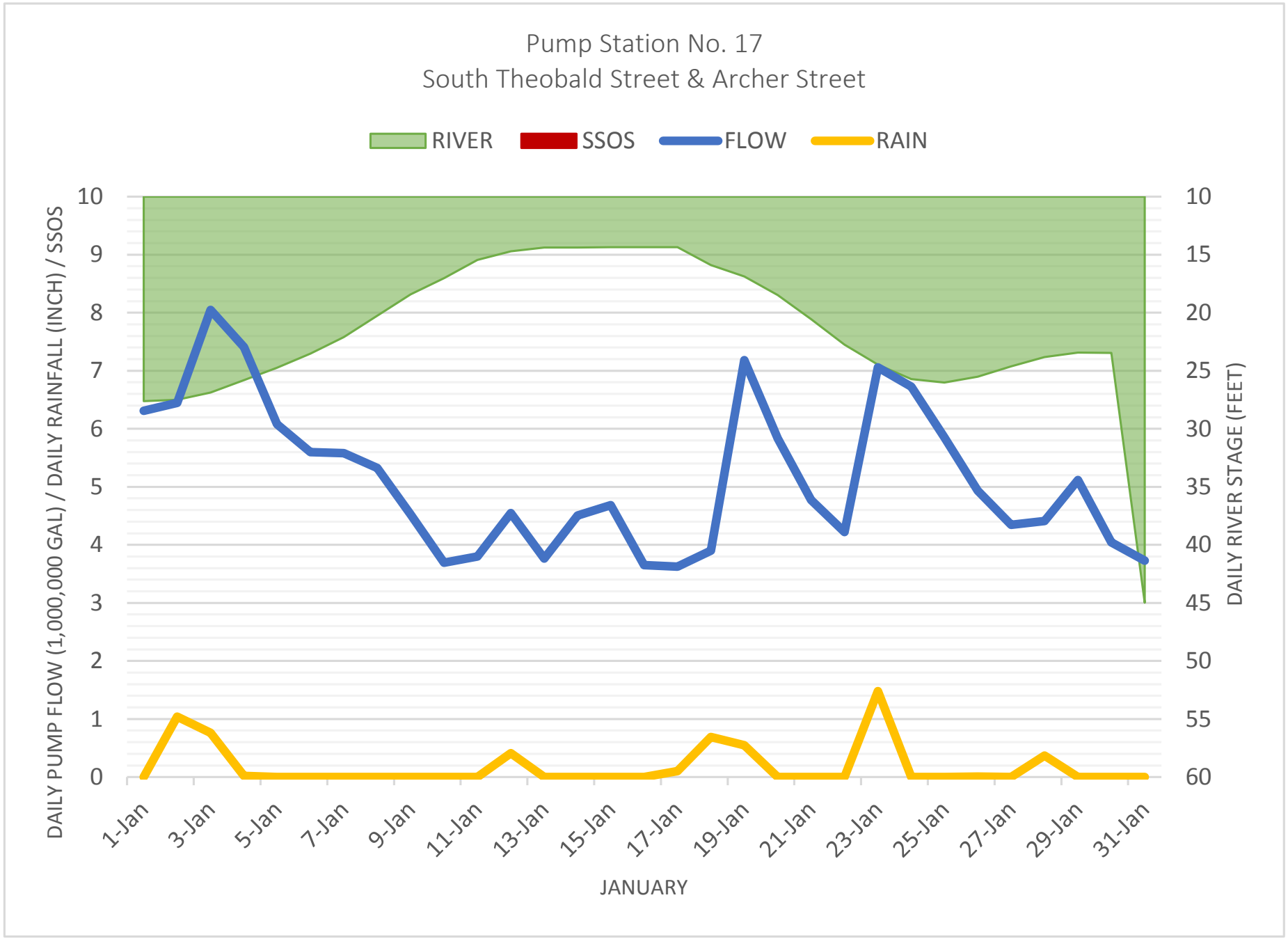
31-Dec
DECEMBER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South Theobald Street & Archer Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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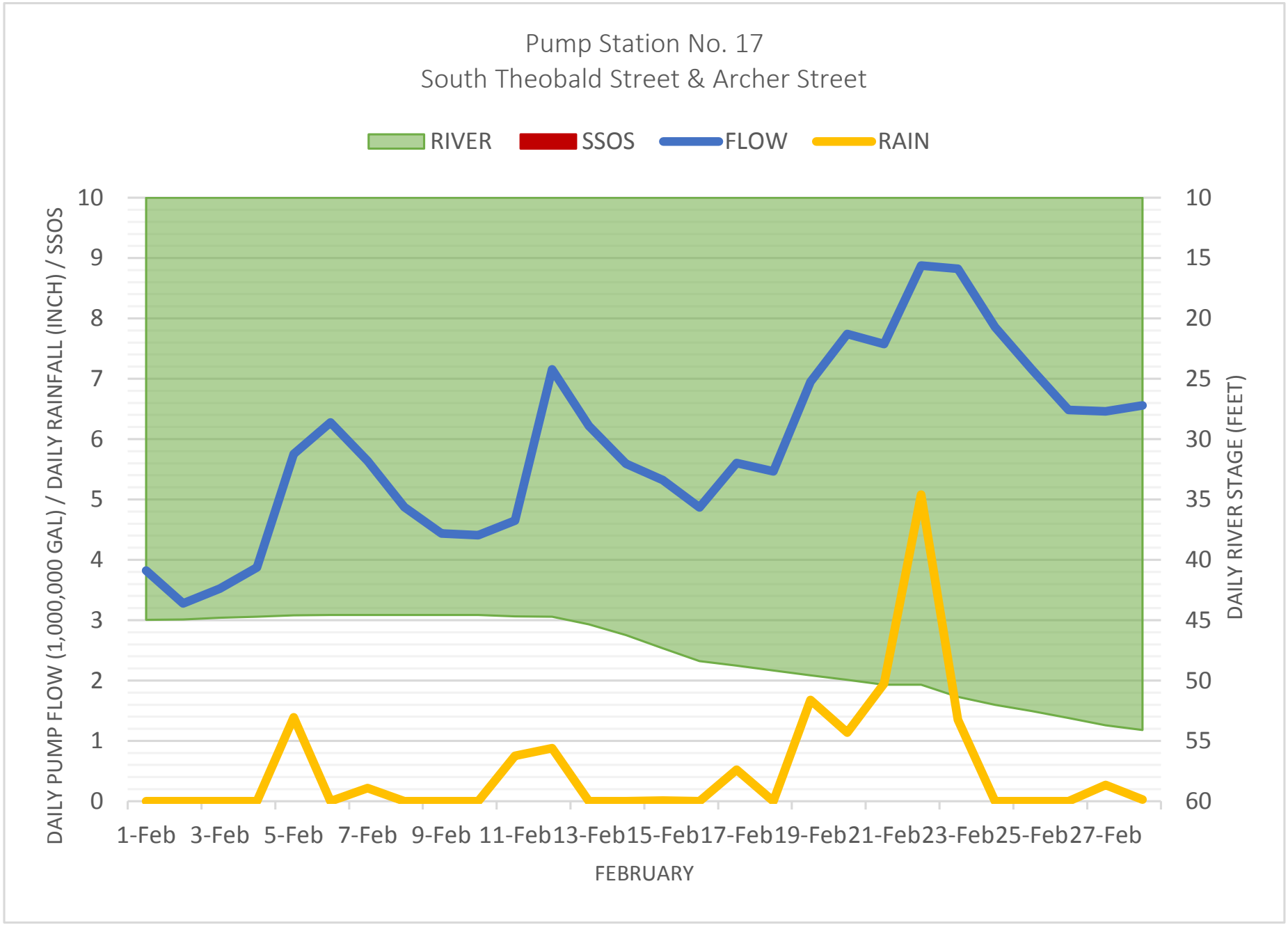
29-Jan
31-Jan
JANUARY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South Theobald Street & Archer Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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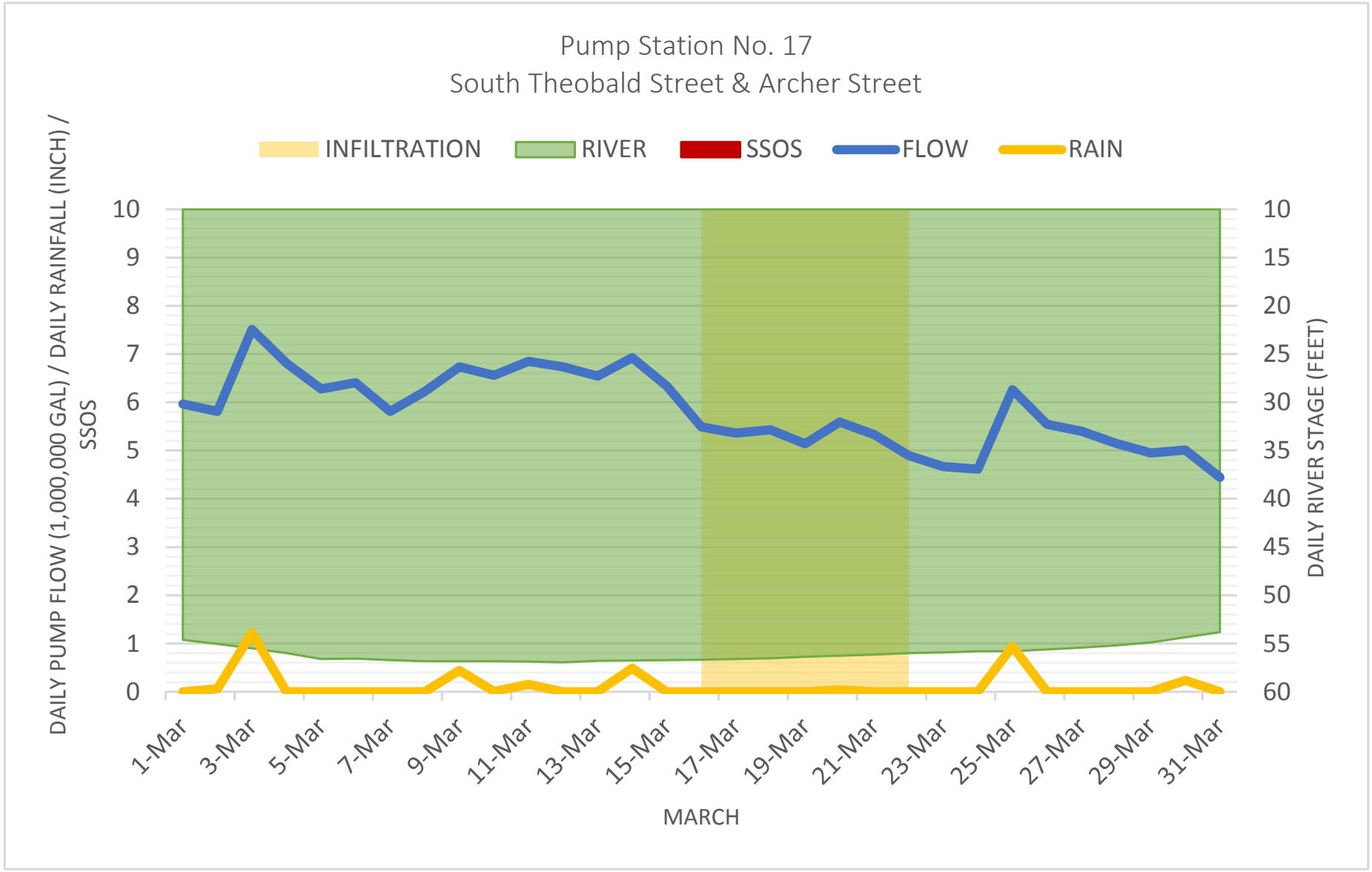
21-Feb
23-Feb
25-Feb
27-Feb
FEBRUARY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South Theobald Street & Archer Street
INFILTRATION
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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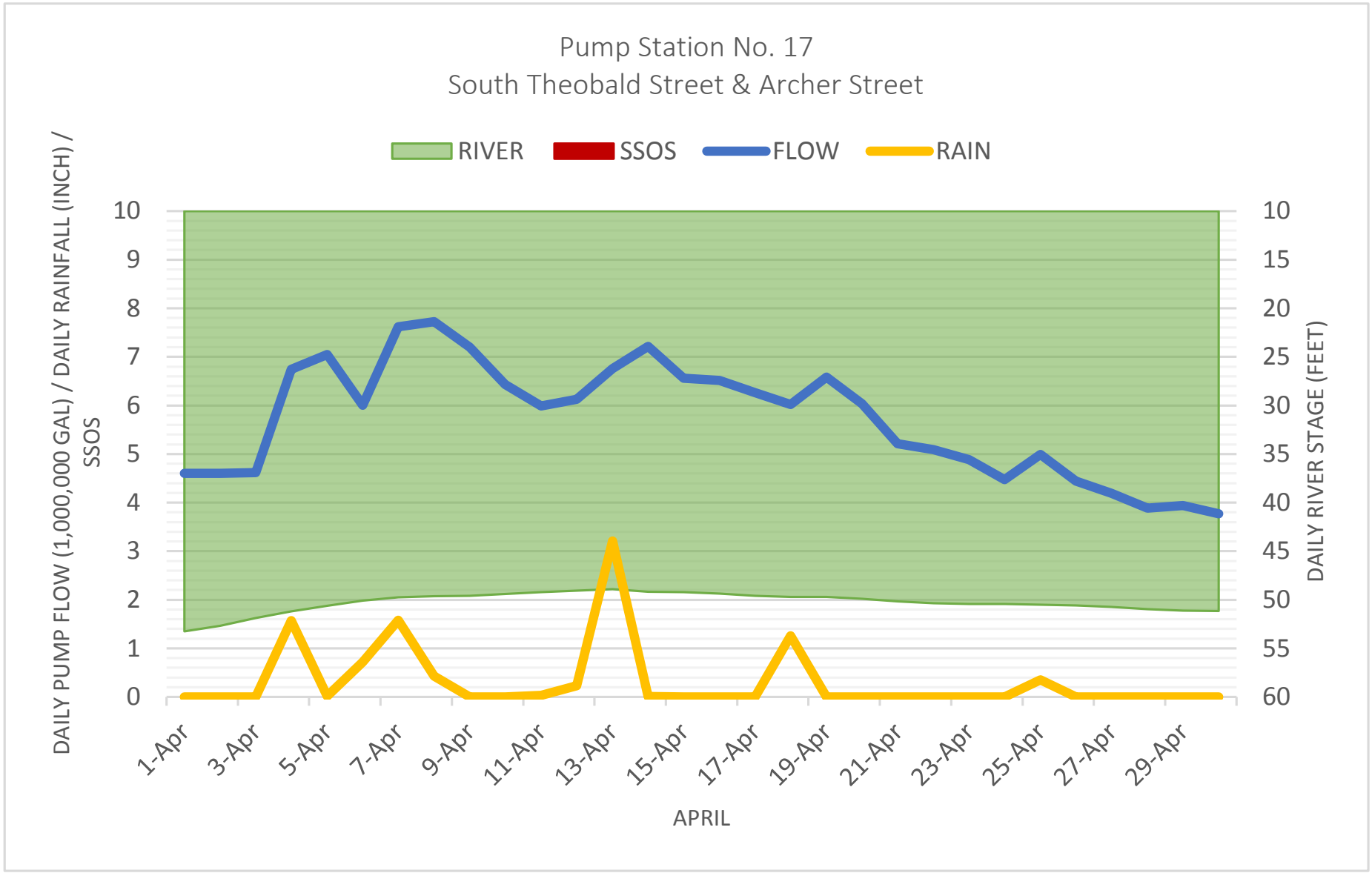
31-Mar
MARCH


Pump Station No. 17
South Theobald Street & Archer Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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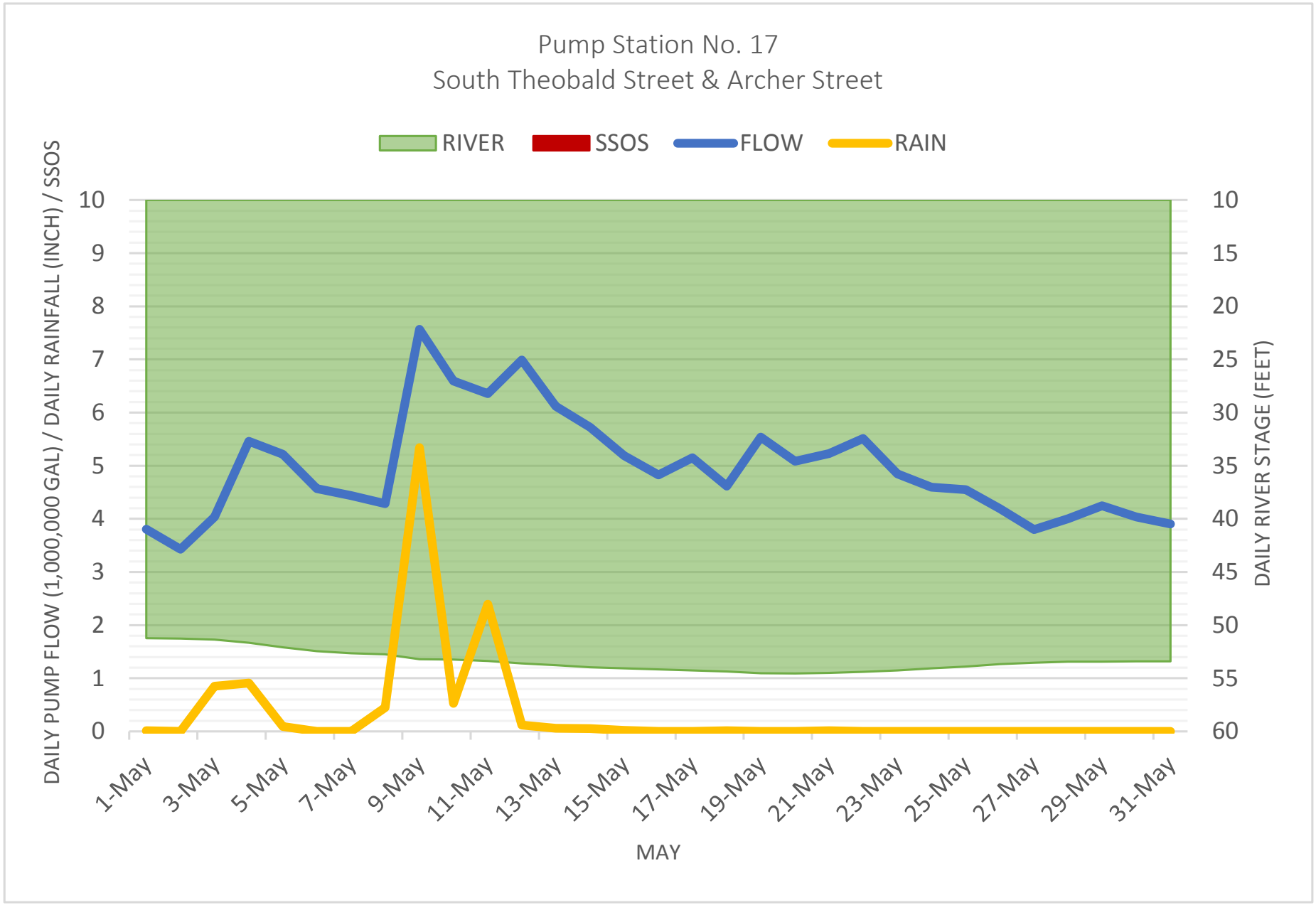
APRIL


Pump Station No. 17
South Theobald Street & Archer Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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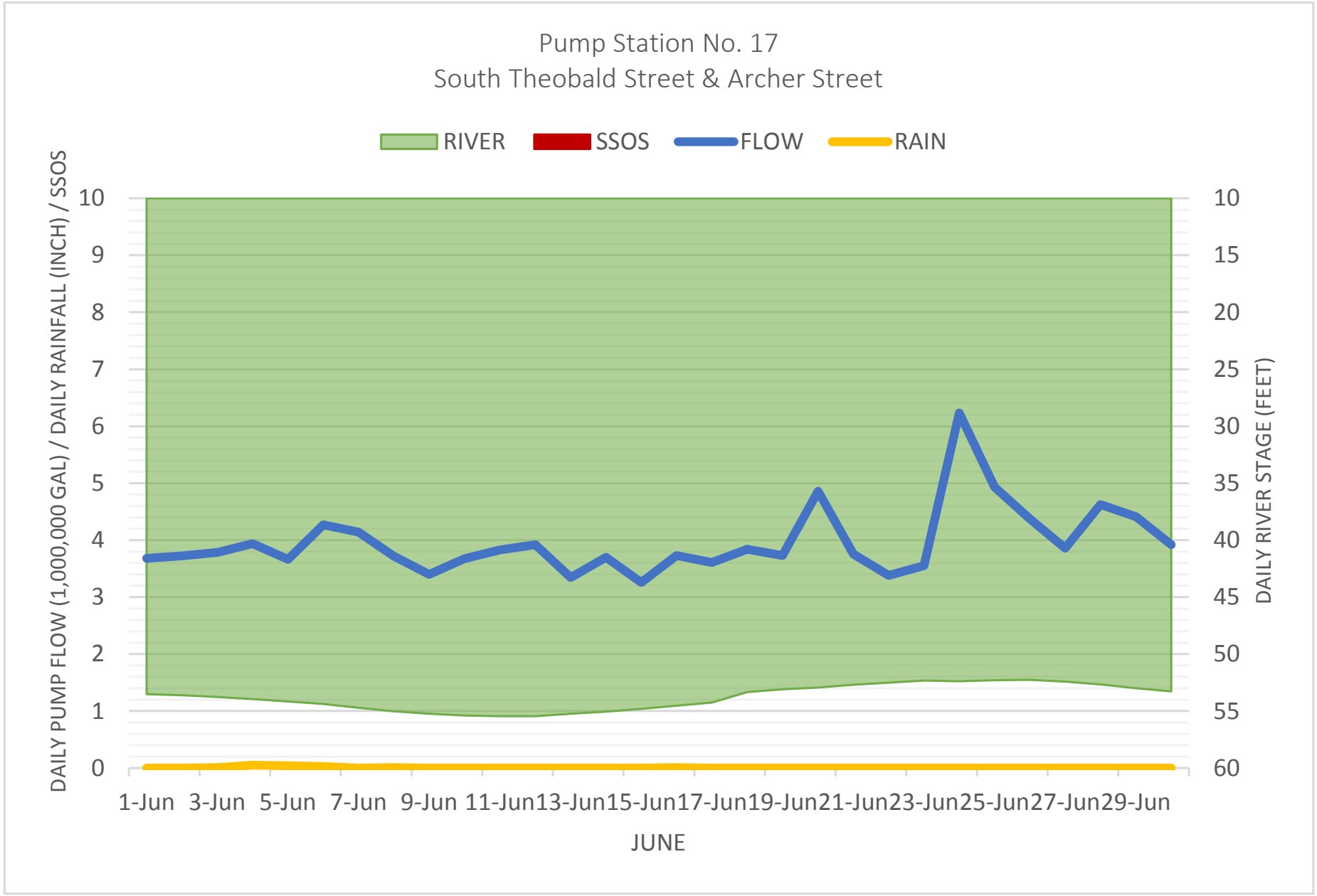
31-May
MAY


Pump Station No. 17
South Theobald Street & Archer Street
RIVER
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RAIN
DAILY PUMP FLOW (1,000,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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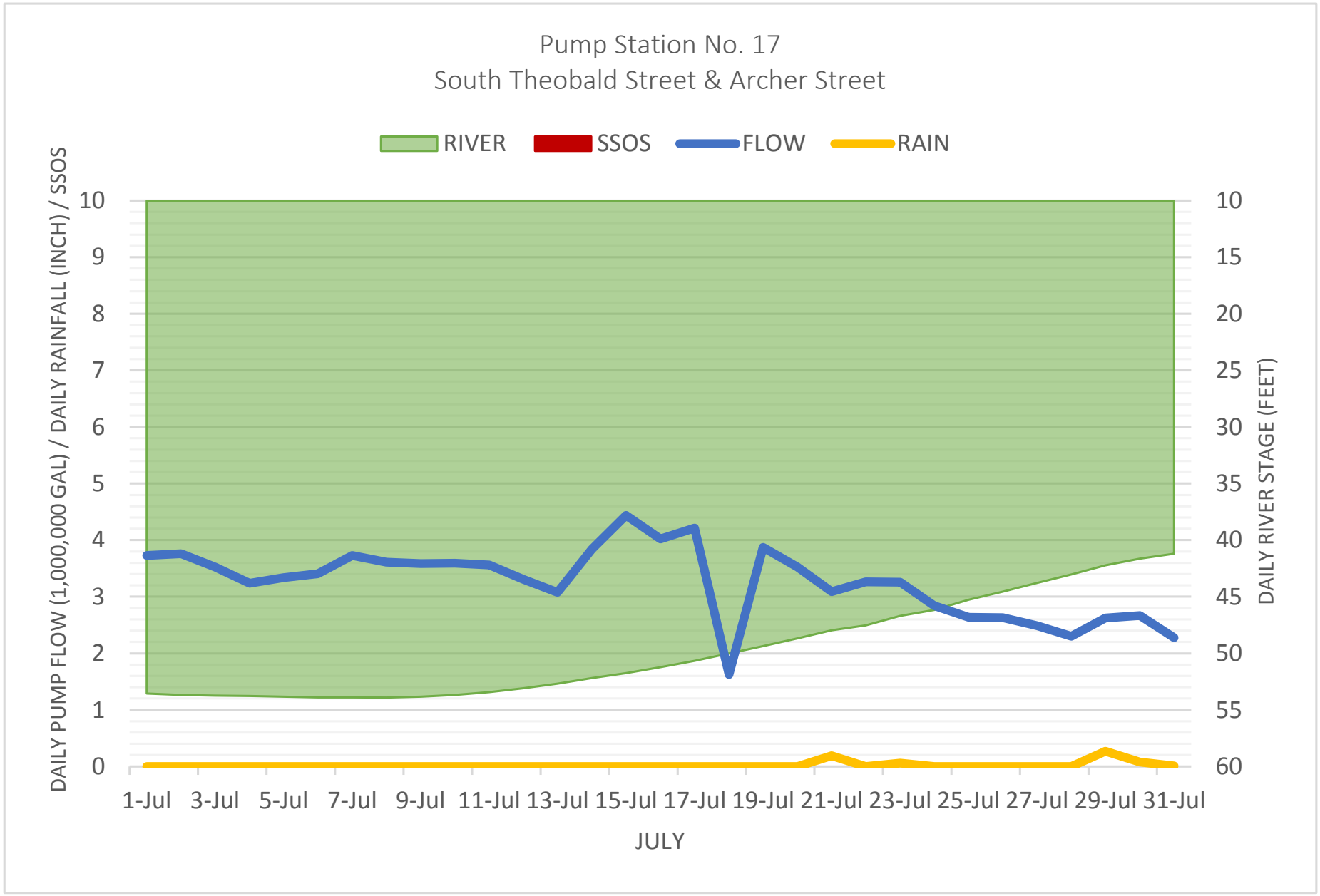
29-Jun
JUNE


Pump Station No. 17
South Theobald Street & Archer Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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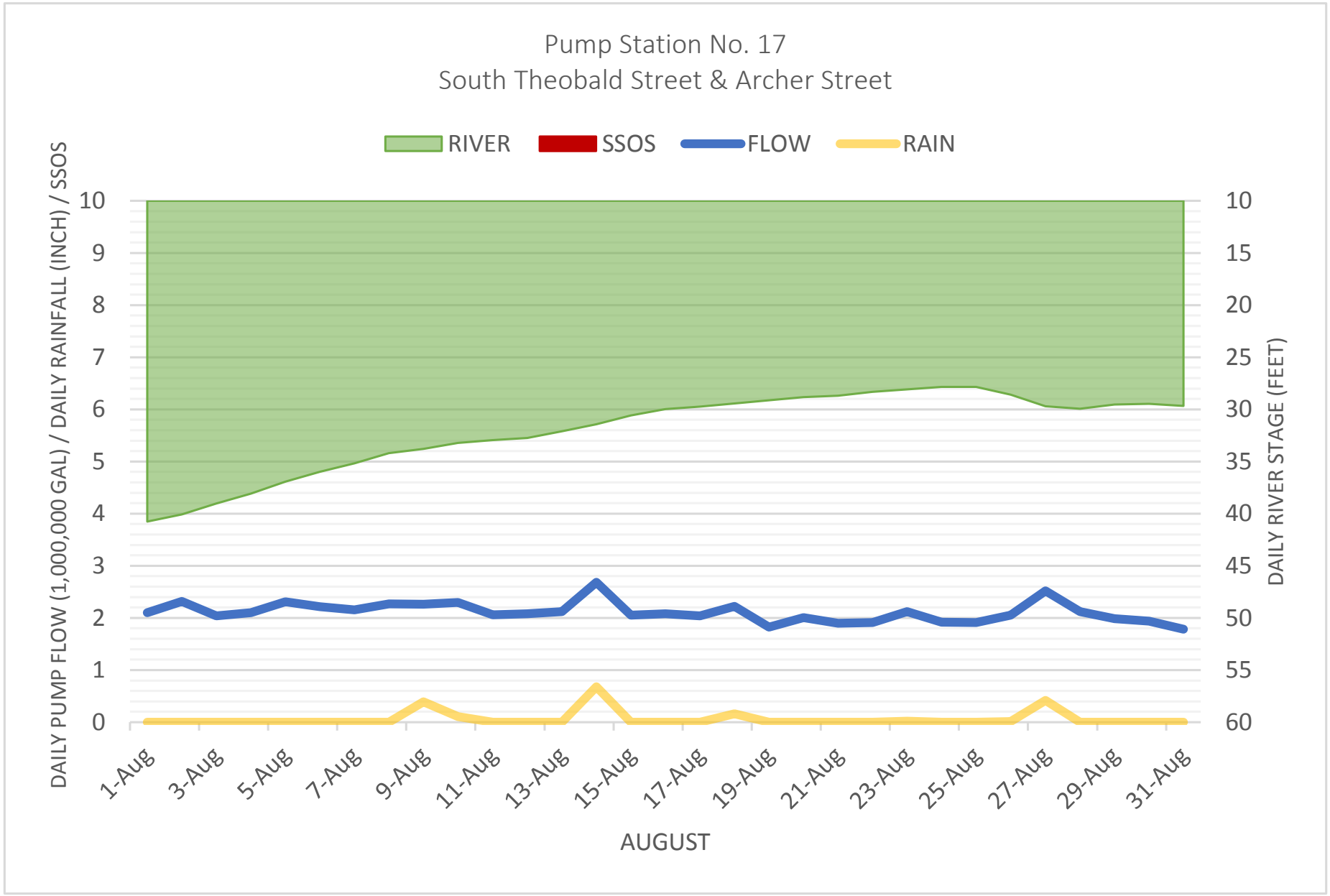
JULY


Pump Station No. 17
South Theobald Street & Archer Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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25-Aug
27-Aug
29-Aug
31-Aug
AUGUST

APPENDIX 11

MS9-B/PS40 I/I WORKSHEET

MS9-B/PS40
INFLOW & INFILTRATION WORKSHEET

Infiltration

	feet	miles	diameter	inch-miles	
30" GRAVITY	5863	1.11	30.00	33.3125	
18" GRAVITY	0	0.00	18.00	0	
15" GRAVITY	0	0.00	15.00	0	
12" GRAVITY	0	0.00	12.00	0	
10" GRAVITY	5670	1.07	10.00	10.73864	
8" GRAVITY	43454	8.23	8.00	65.83939	
6" GRAVITY	0	0.00	6	0	
4" LATERALS	36900	6.99	4	27.95455	
TOTAL PIPE	91887	17.40			
				137.8451	**total inch-miles in system**

maximum average infiltration	inch-miles		
151,042.8571	137.85	**1095.744**	**total gpd/idm**

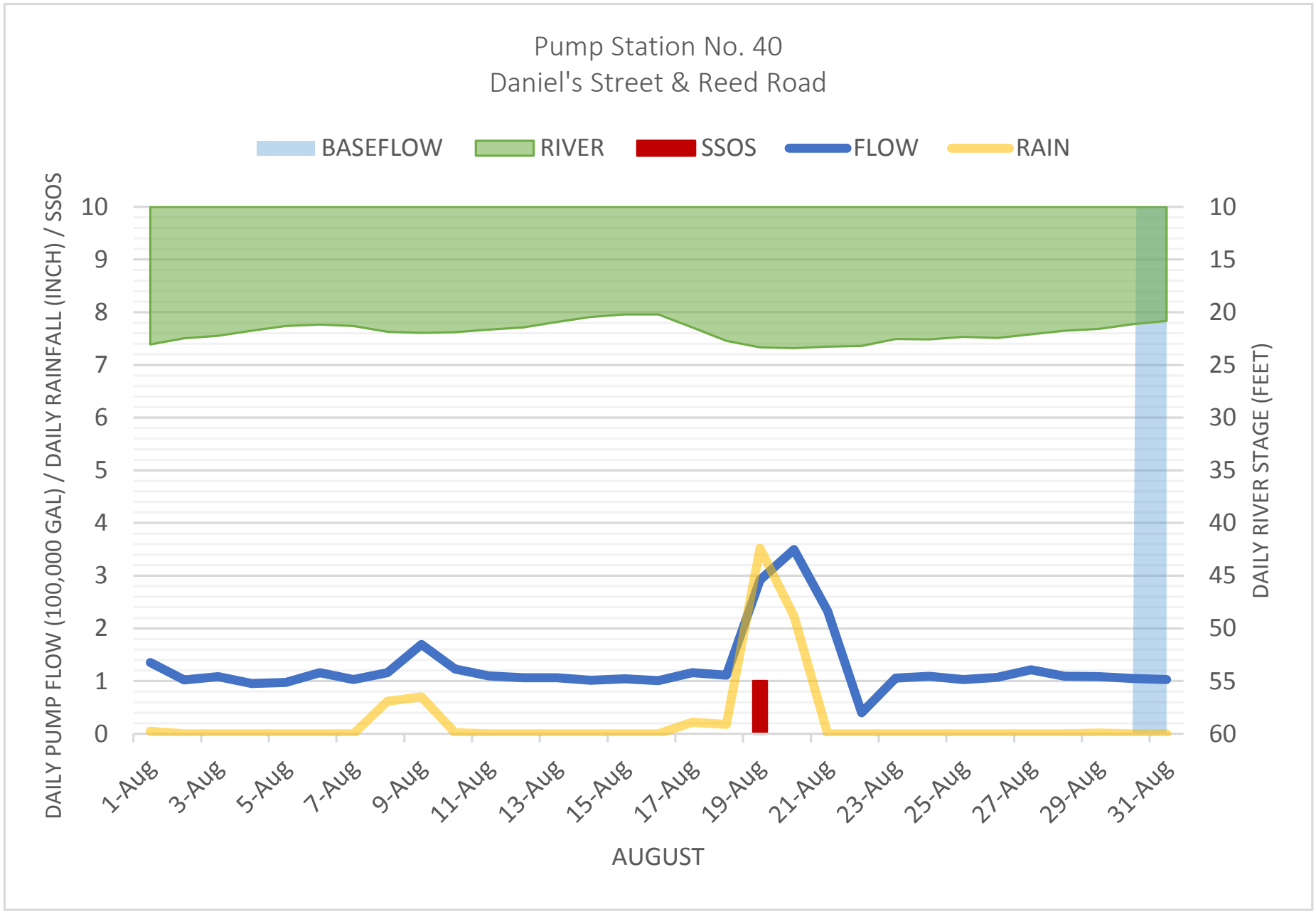
Inflow

	feet	miles	diameter	inch-miles	
30" GRAVITY	5863	1.11	30.00	33.3125	
18" GRAVITY	0	0.00	18.00	0	
15" GRAVITY	0	0.00	15.00	0	
12" GRAVITY	0	0.00	12.00	0	
10" GRAVITY	5670	1.07	10.00	10.73864	
8" GRAVITY	43454	8.23	8.00	65.83939	
6" GRAVITY	0	0.00	6.00	0	
4" LATERALS	36900	6.99	4.00	27.95455	
TOTAL PIPE	91887				
				137.8451	**total inch-miles in system**

maximum average inflow	inch-miles		
393,800.0000	137.85	**2856.83**	**total gpd/idm**

APPENDIX 12

MS9-B/PS40 GRAPHS


Pump Station No. 40
Daniel's Street & Reed Road
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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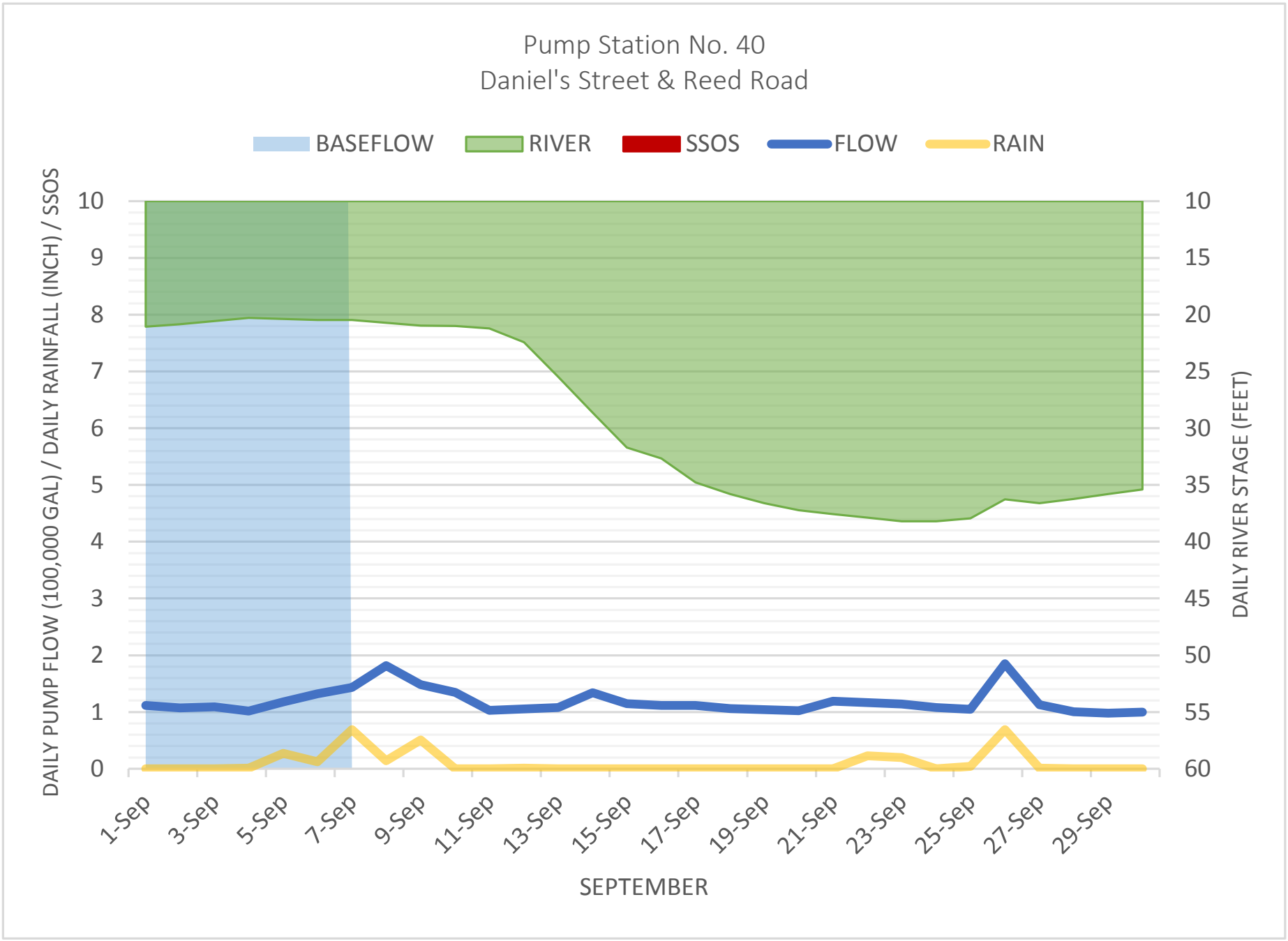
31-Aug
AUGUST


Pump Station No. 40
Daniel's Street & Reed Road
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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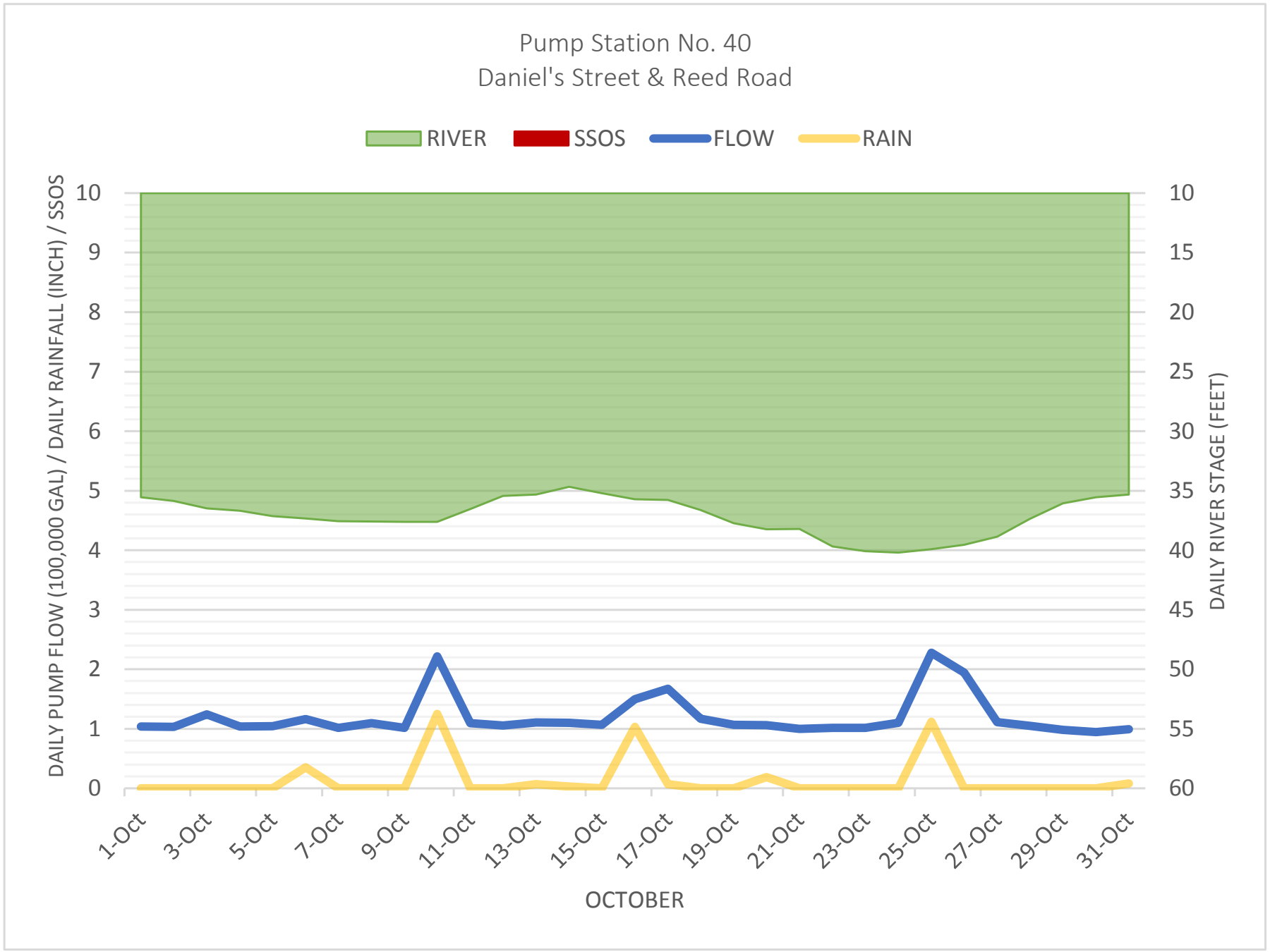
29-Sep
SEPTEMBER


Pump Station No. 40
Daniel's Street & Reed Road
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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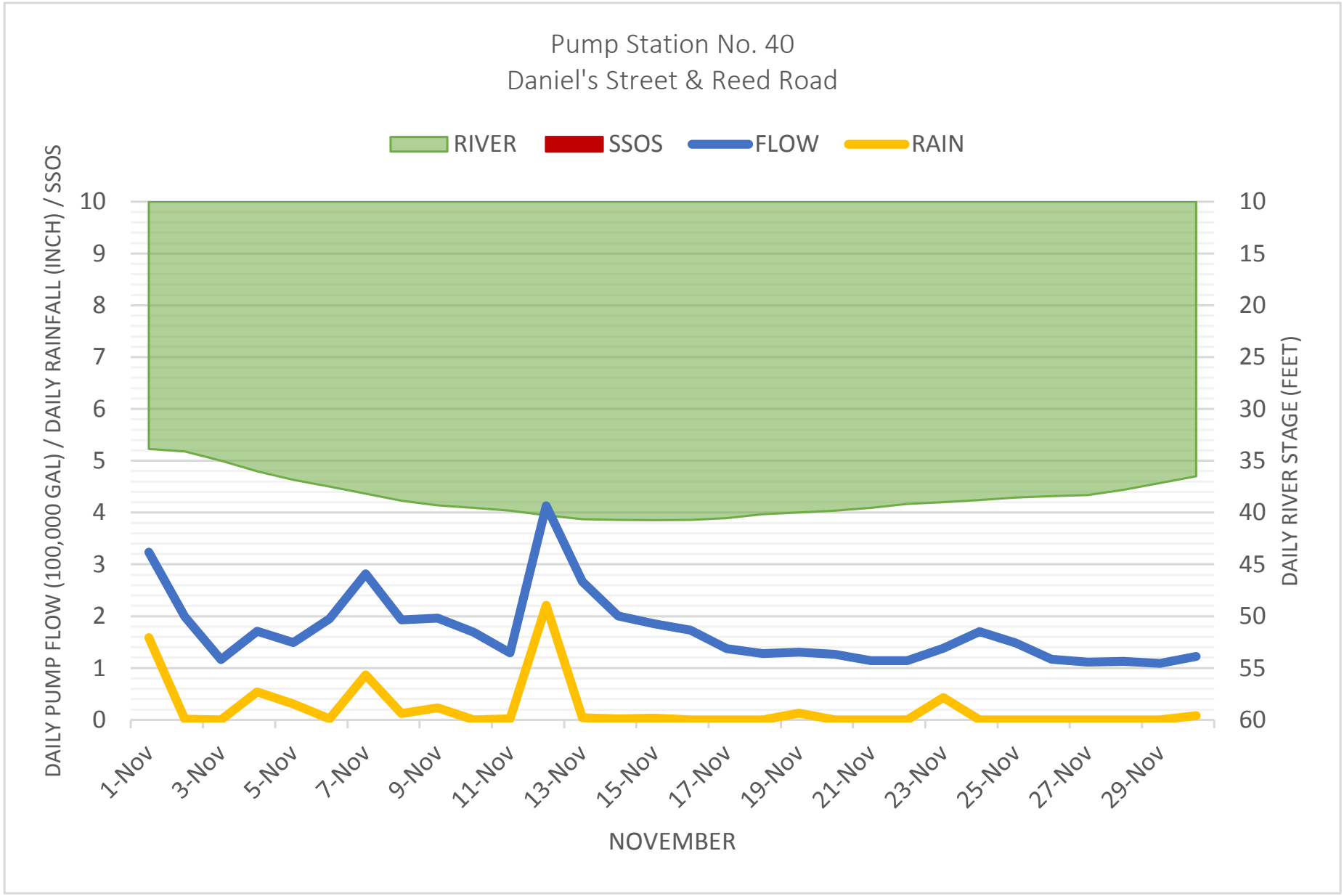
31-Oct
OCTOBER


Pump Station No. 40
Daniel's Street & Reed Road
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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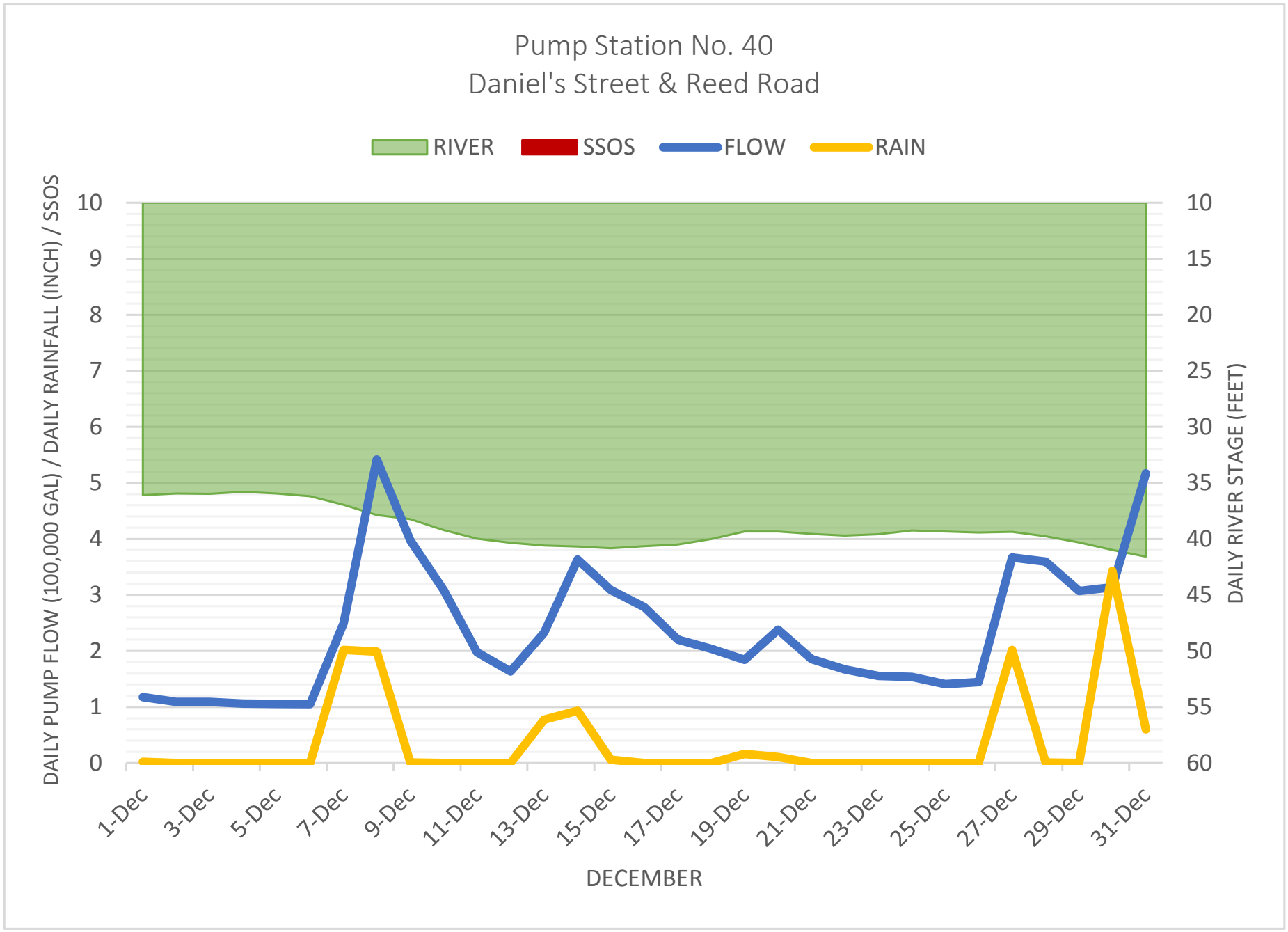
29-Nov
NOVEMBER


Pump Station No. 40
Daniel's Street & Reed Road
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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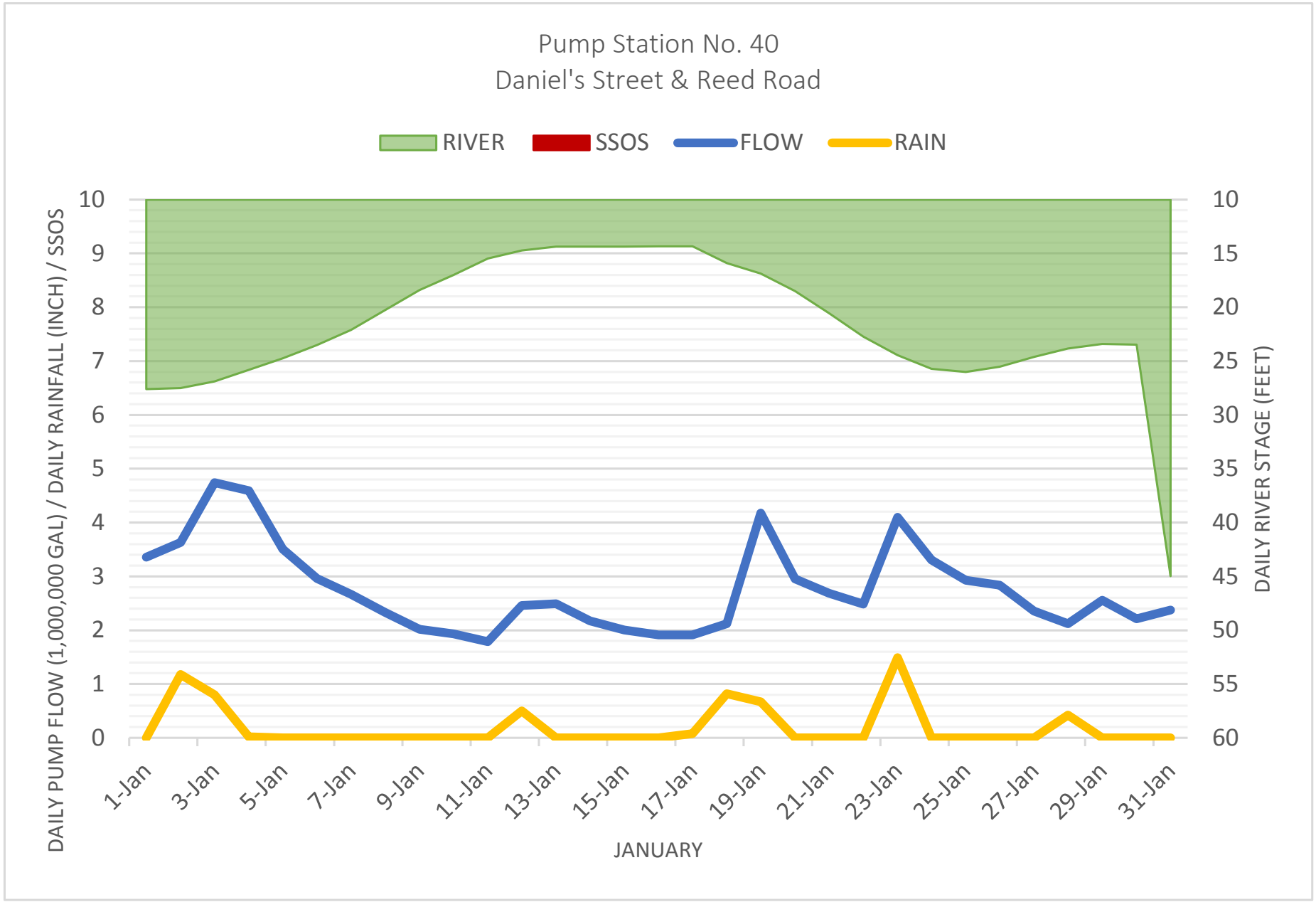
29-Dec
31-Dec
DECEMBER


Pump Station No. 40
Daniel's Street & Reed Road
RIVER
SSOS
FLOW
RAIN
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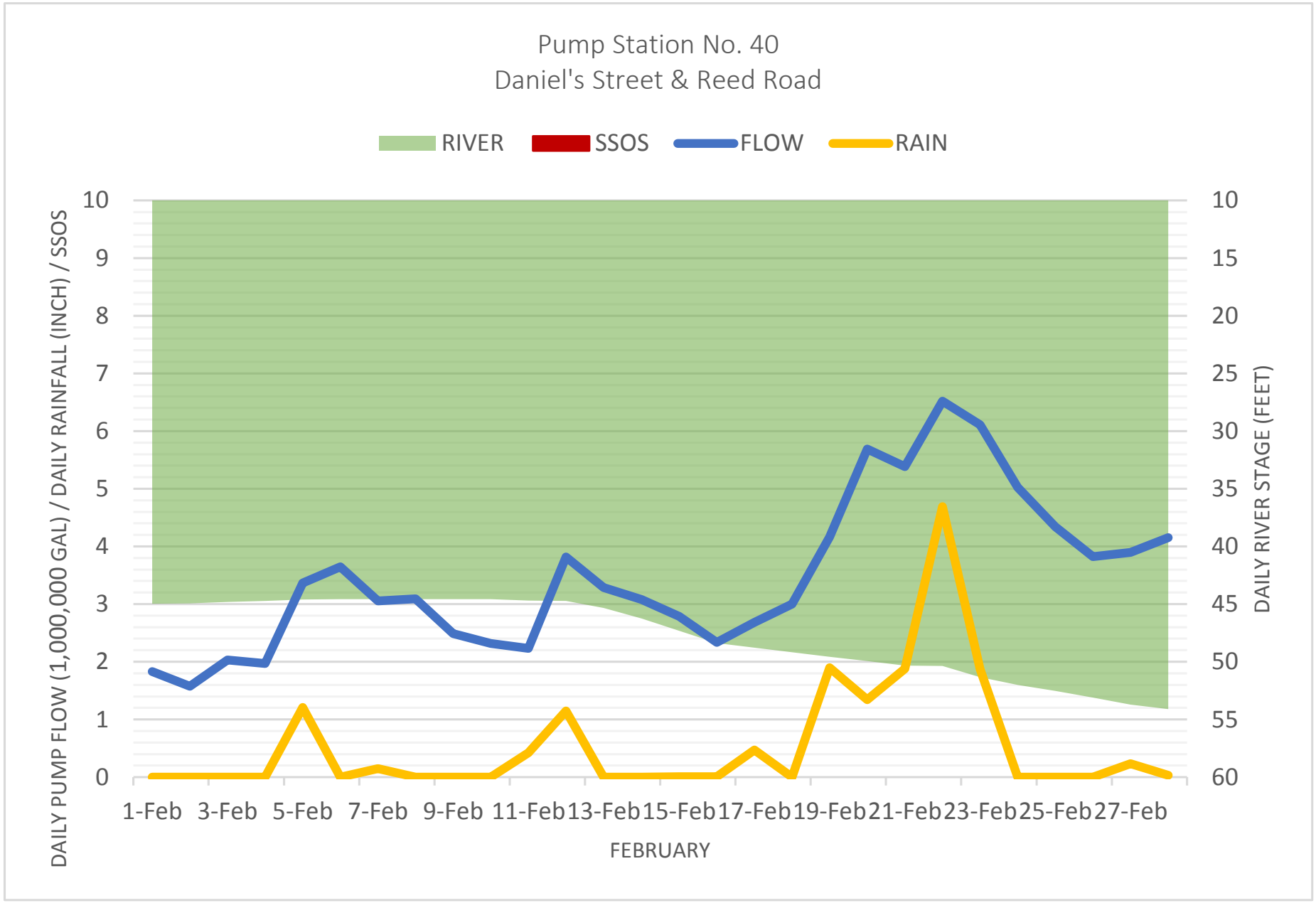
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Daniel's Street & Reed Road
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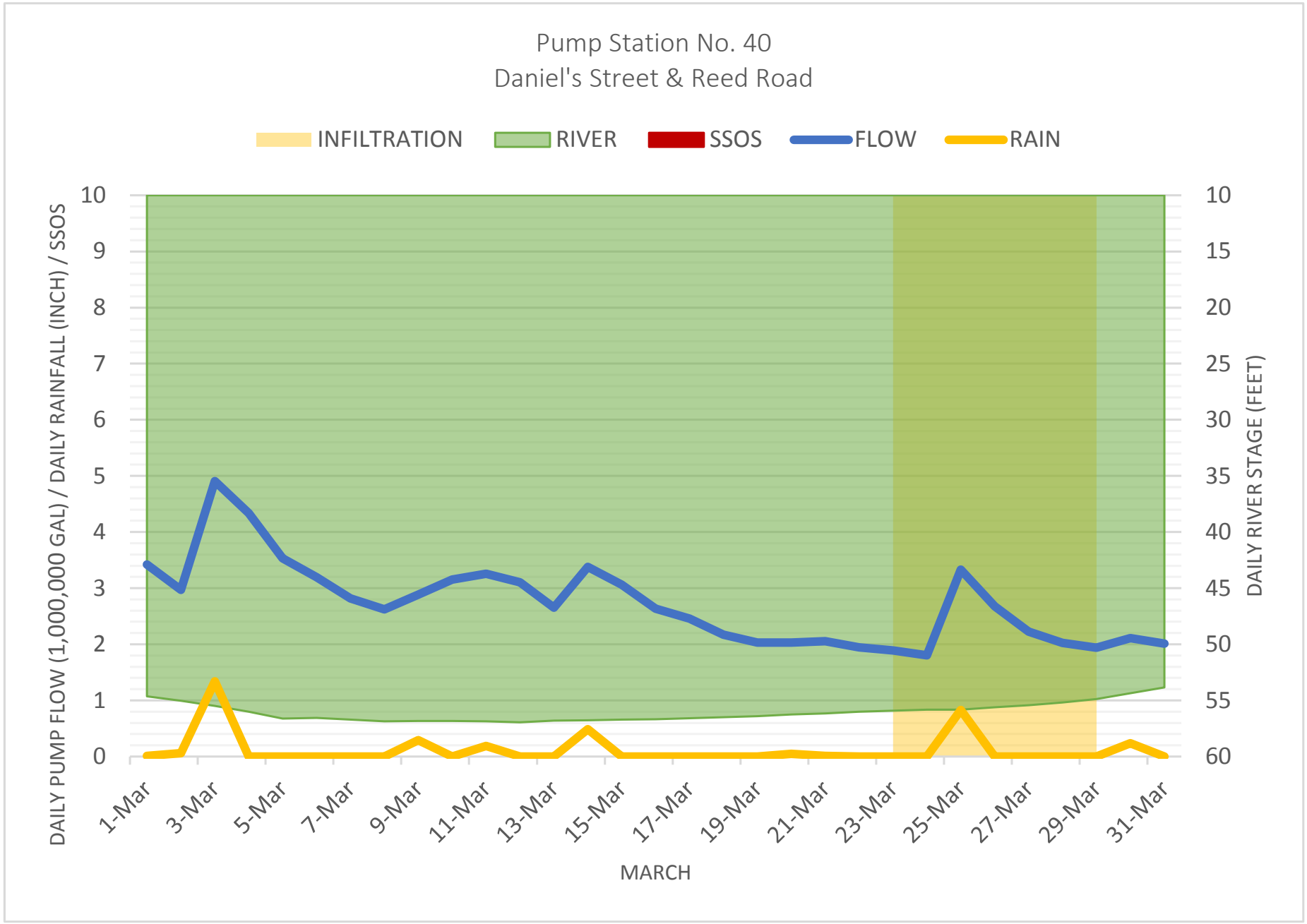
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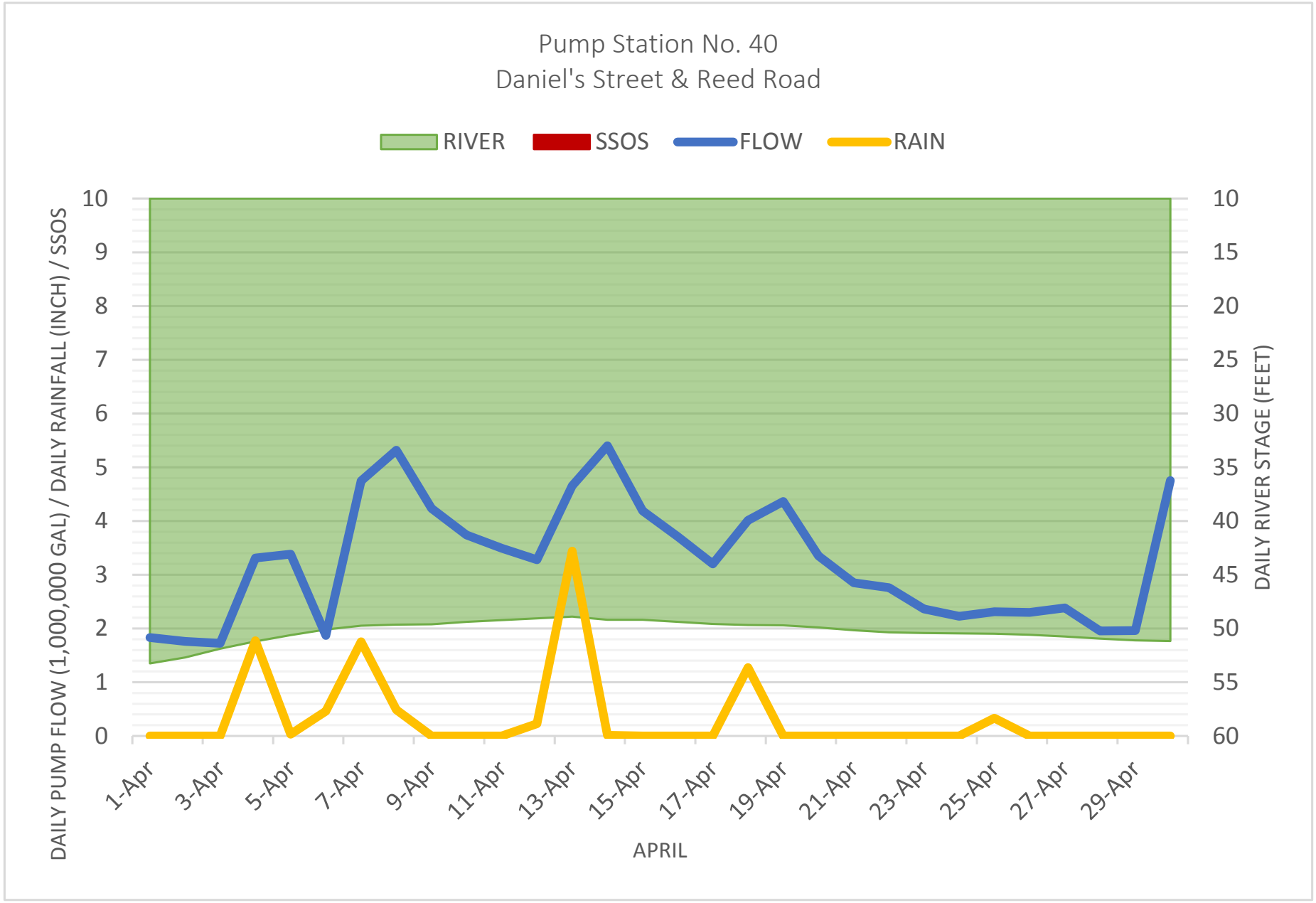
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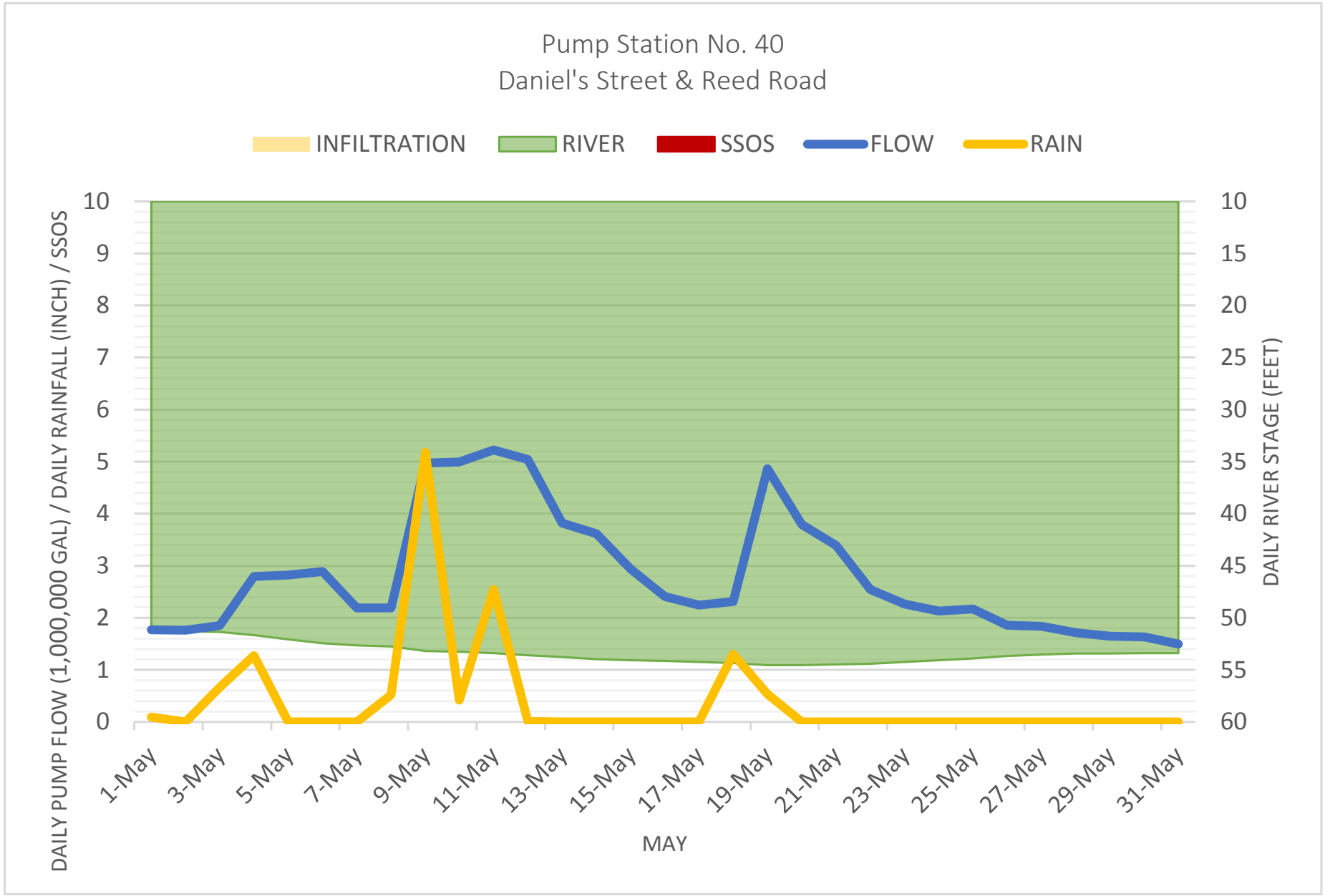
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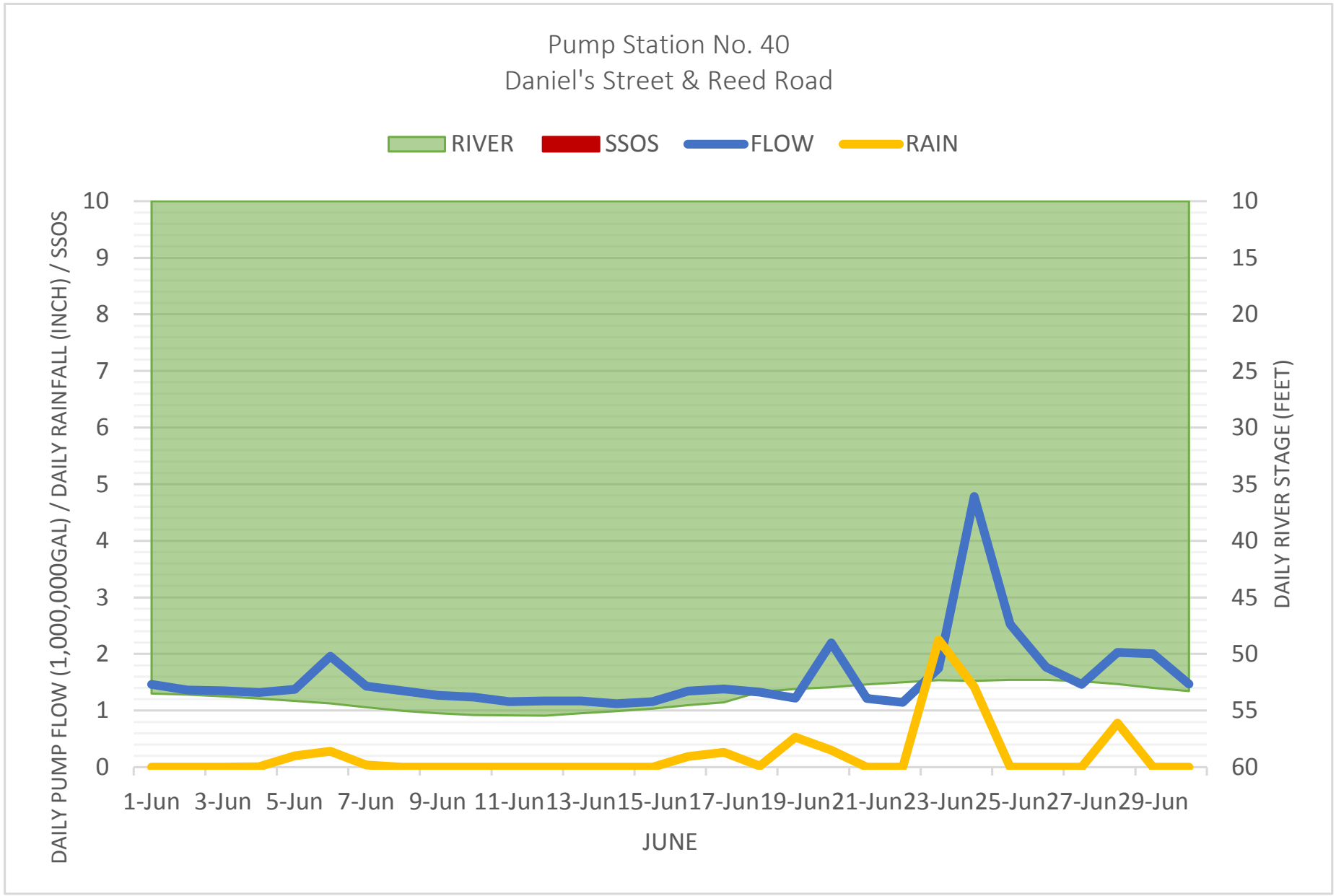
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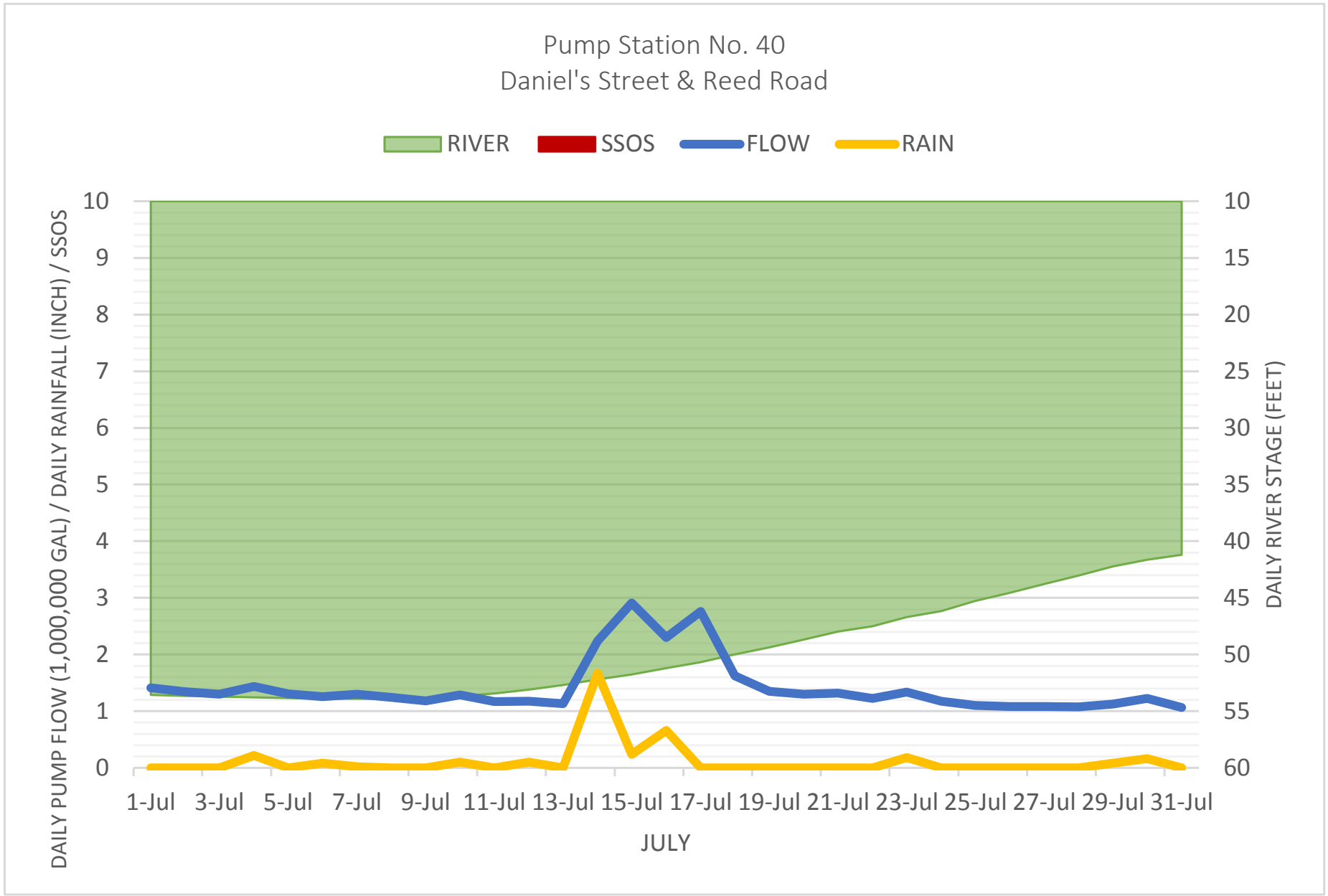
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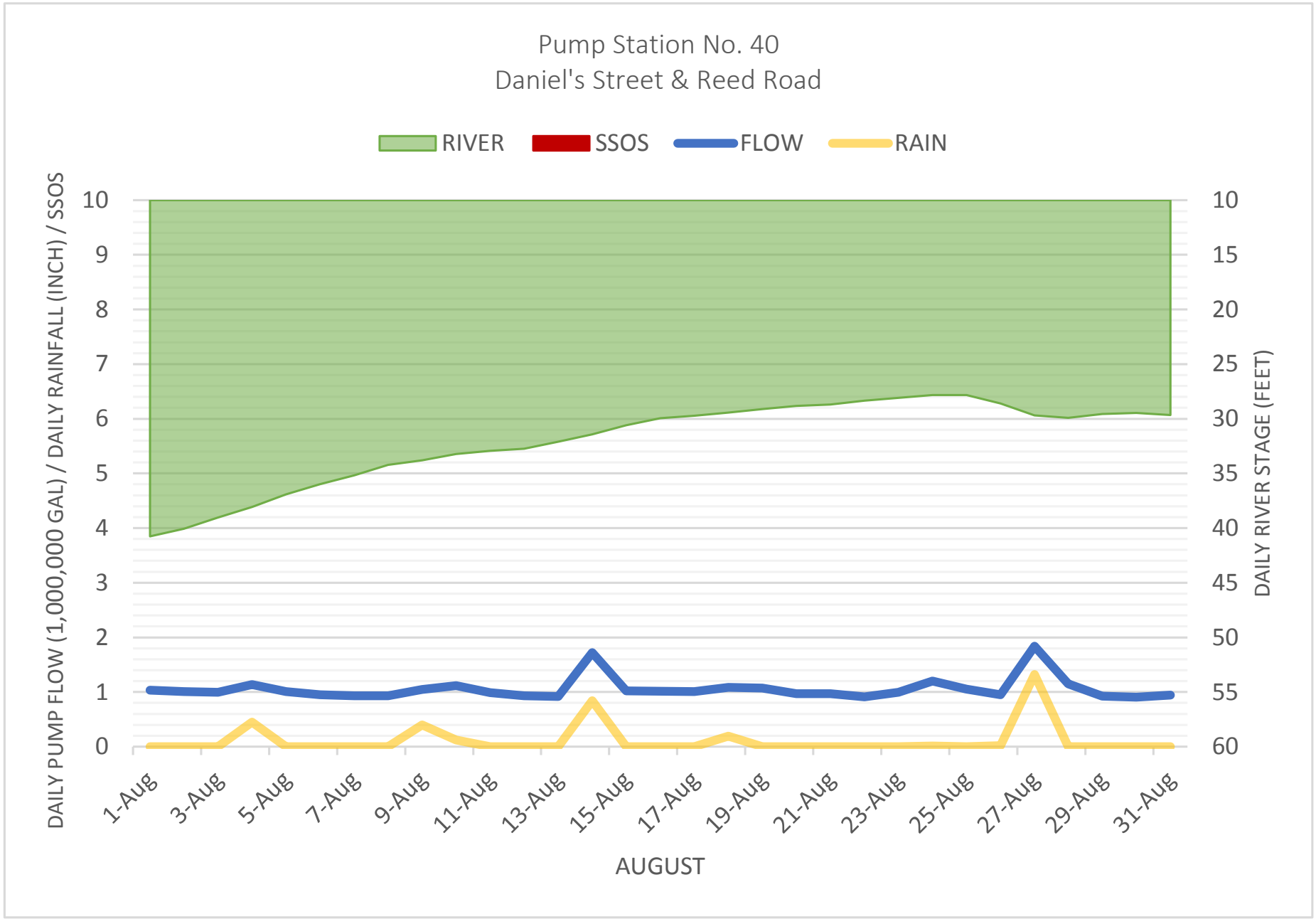
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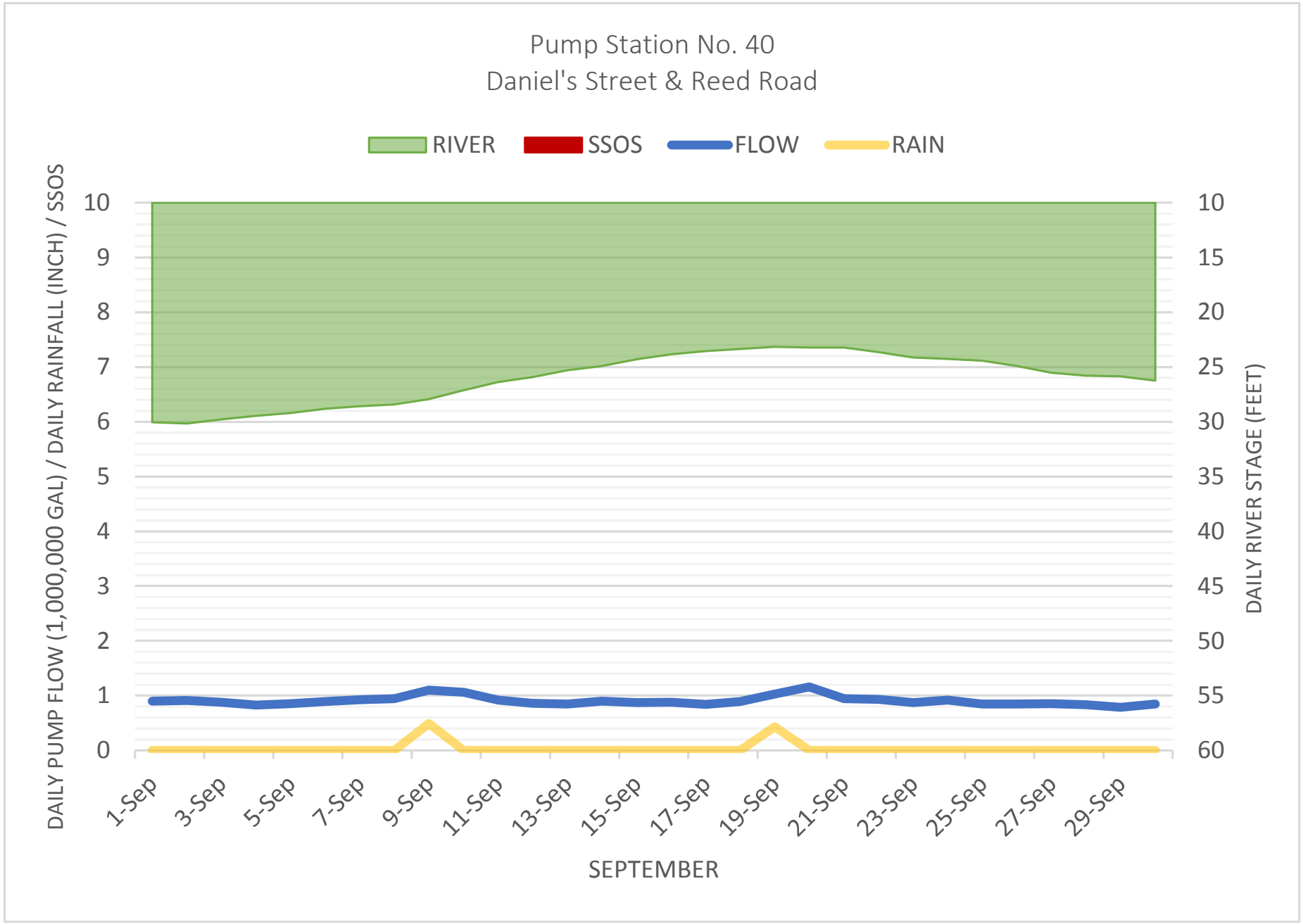
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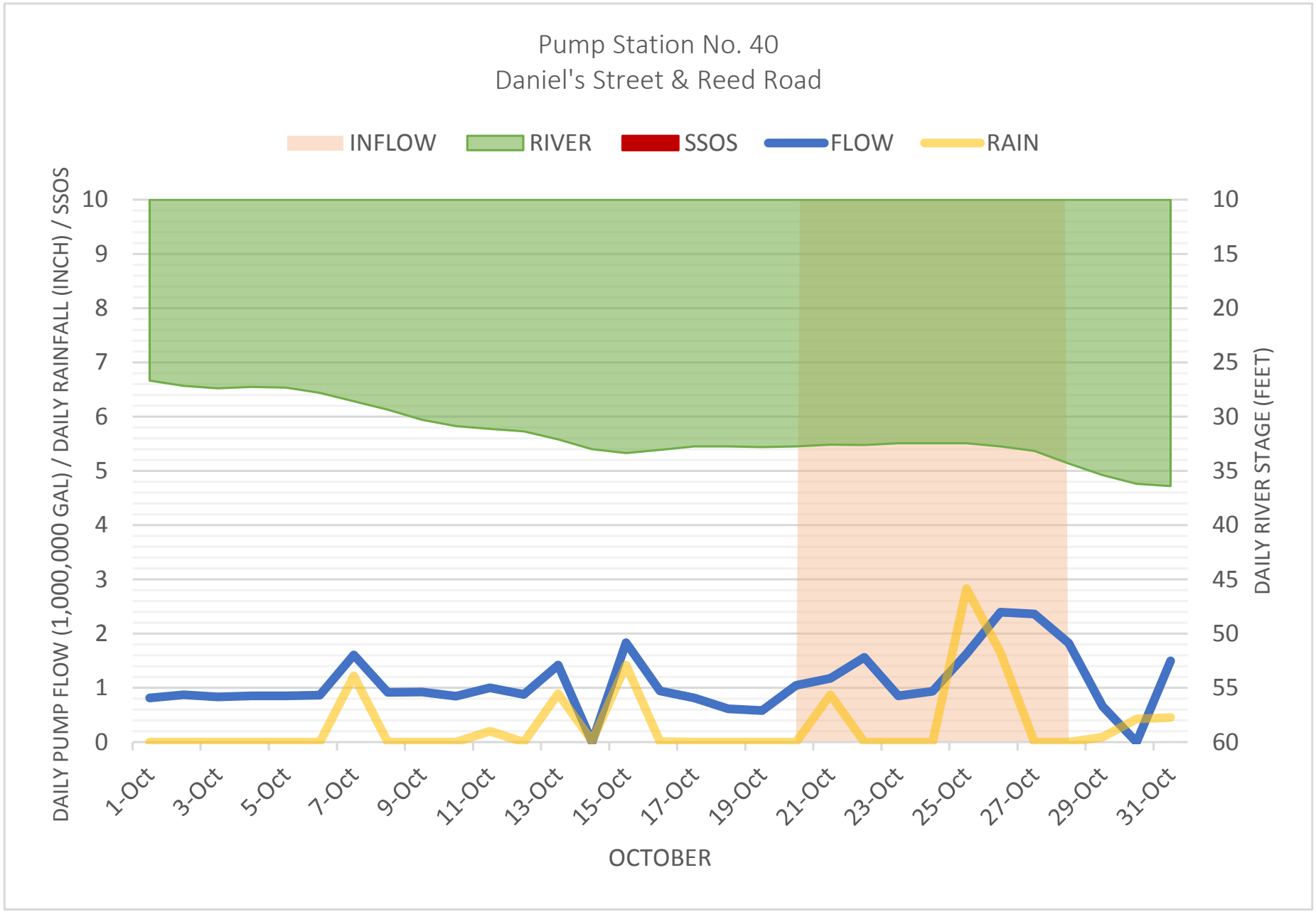
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Daniel's Street & Reed Road
INFLOW
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SSOS
FLOW
RAIN
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DAILY RIVER STAGE (FEET)
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29-Oct
31-Oct
OCTOBER

APPENDIX 13

MS9-D/PS49 I/I WORKSHEET

MS9-D/PS49
INFLOW & INFILTRATION WORKSHEET

Infiltration

	feet	miles	diameter	inch-miles	
10" GRAVITY	707	0.13	10	1.339015	
8" GRAVITY	6597	1.25	8	9.995455	
6" LATERALS	1376	0.26	6	1.563636	
4" LATERALS	7900	1.50	4	5.984848	
TOTAL PIPE	8680				
				18.88295	**total inch-miles in system**

average maximum infiltration	inch-miles		
18,071.4286	18.88	**957.0234**	**total gpd/idm**

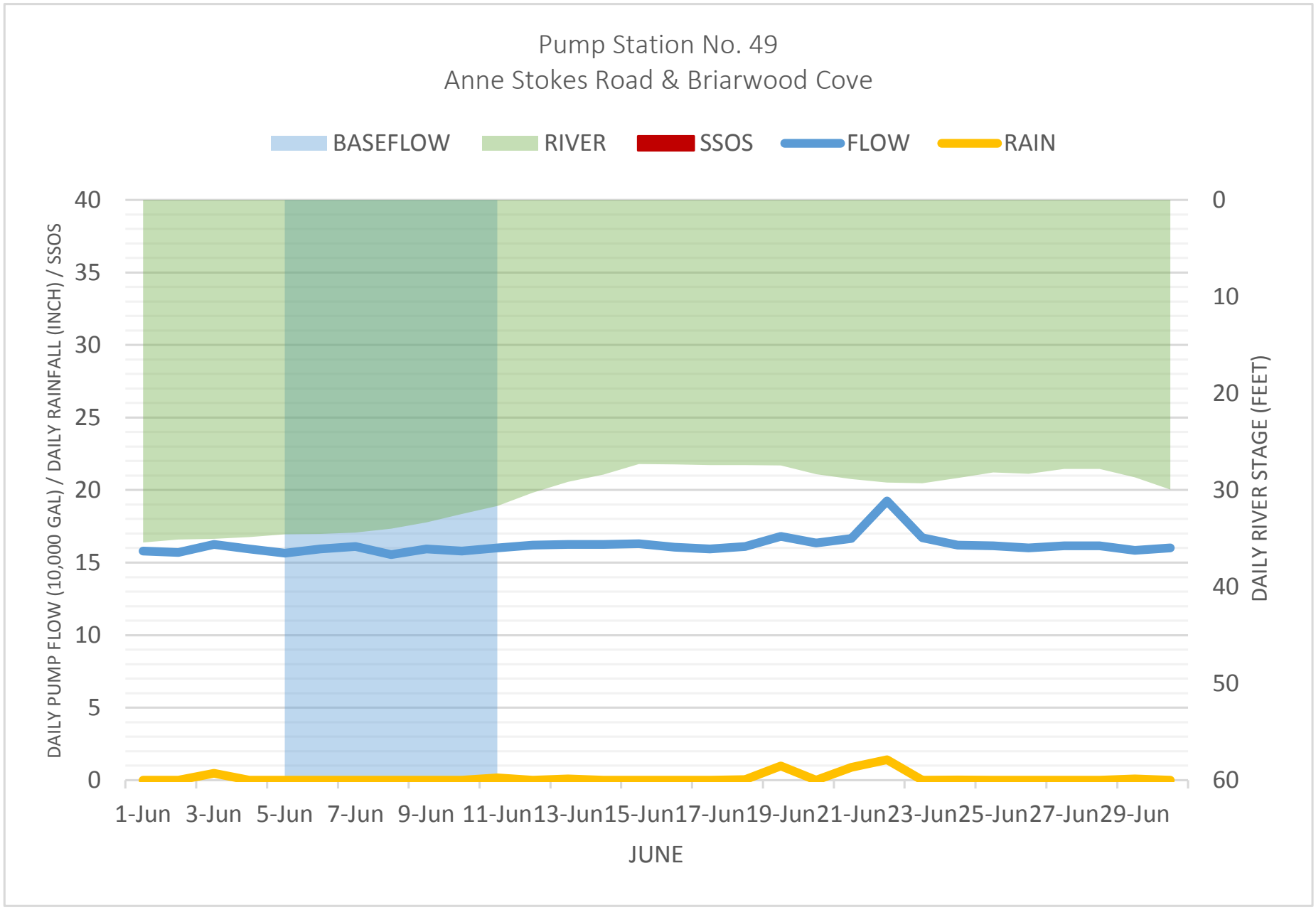
Inflow

	feet	miles	diameter	inch-miles	
10" GRAVITY	707	0.13	10	1.339015	
8" GRAVITY	6597	1.25	8	9.995455	
6" LATERALS	1376	0.26	6	1.563636	
4" LATERALS	7900	1.50	4.00	5.984848	
				18.88295	**total inch-miles in system**

average maximum inflow	inch-miles		
41,928.5714	18.88	**2220.445**	**total gpd/idm**

APPENDIX 14

MS9-D/PS49 GRAPHS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Anne Stokes Road & Briarwood Cove
BASEFLOW
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RAIN
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DAILY RIVER STAGE (FEET)
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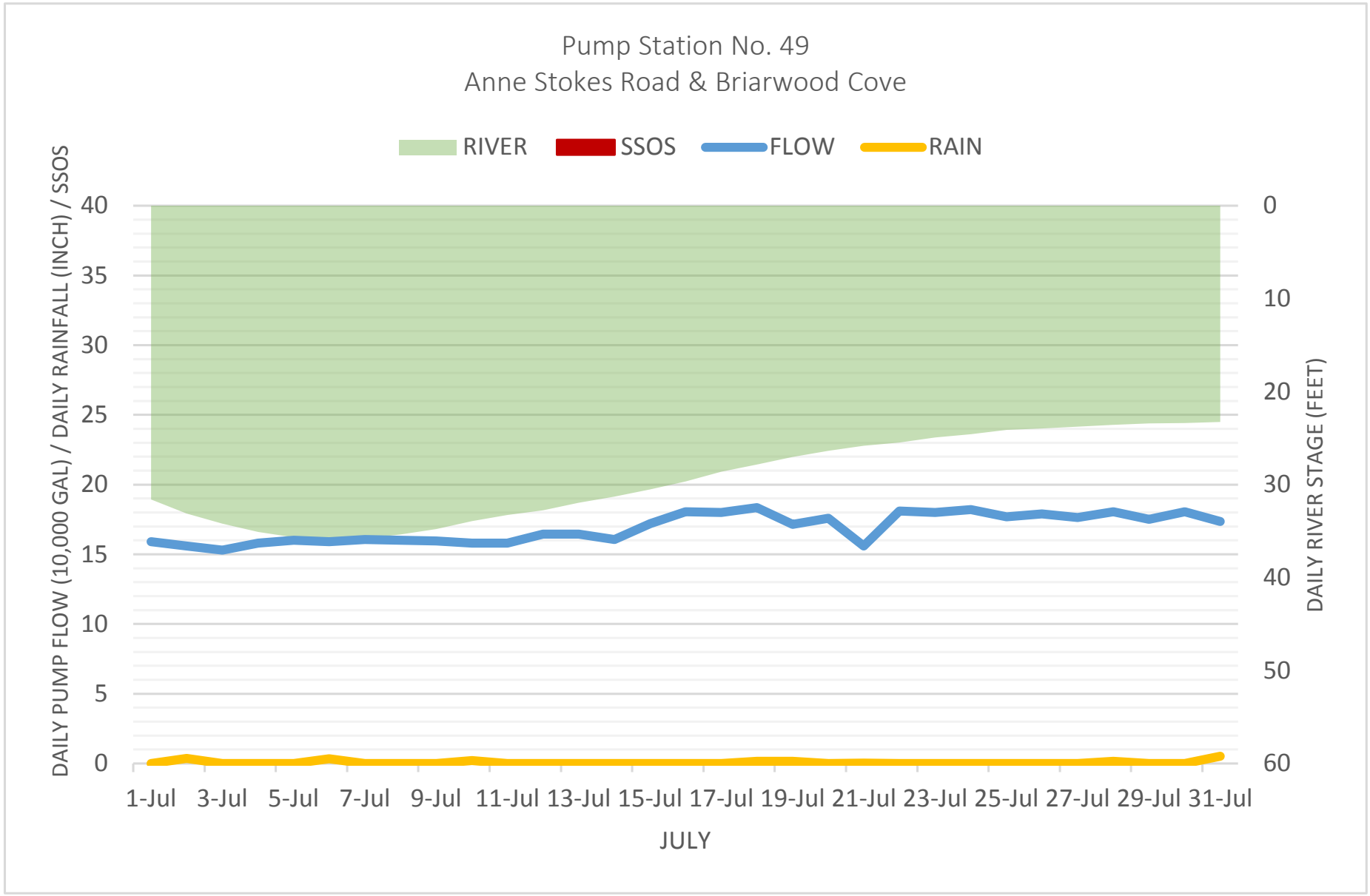
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RAIN
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DAILY RIVER STAGE (FEET)
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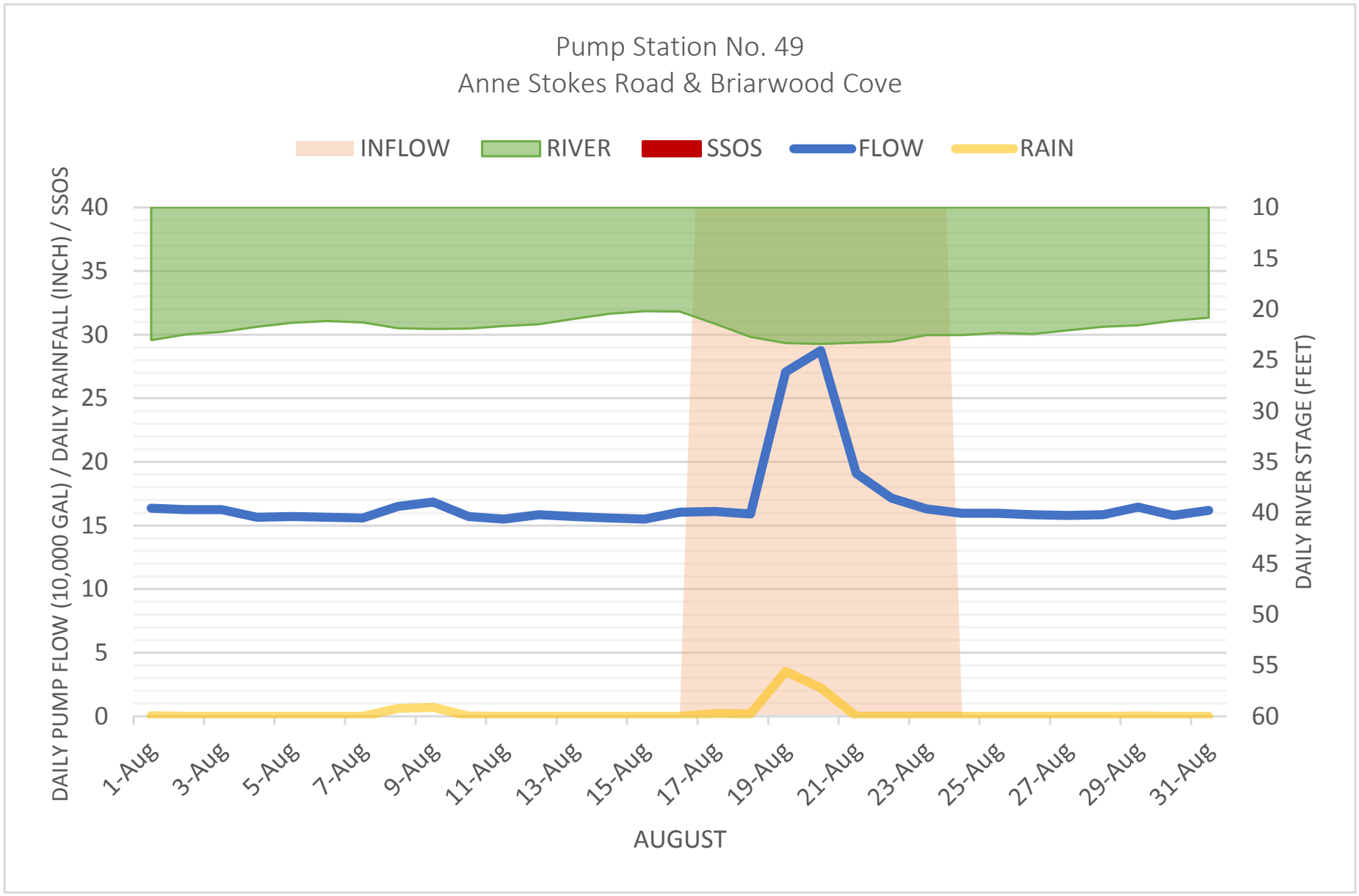
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Anne Stokes Road & Briarwood Cove
INFLOW
RIVER
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RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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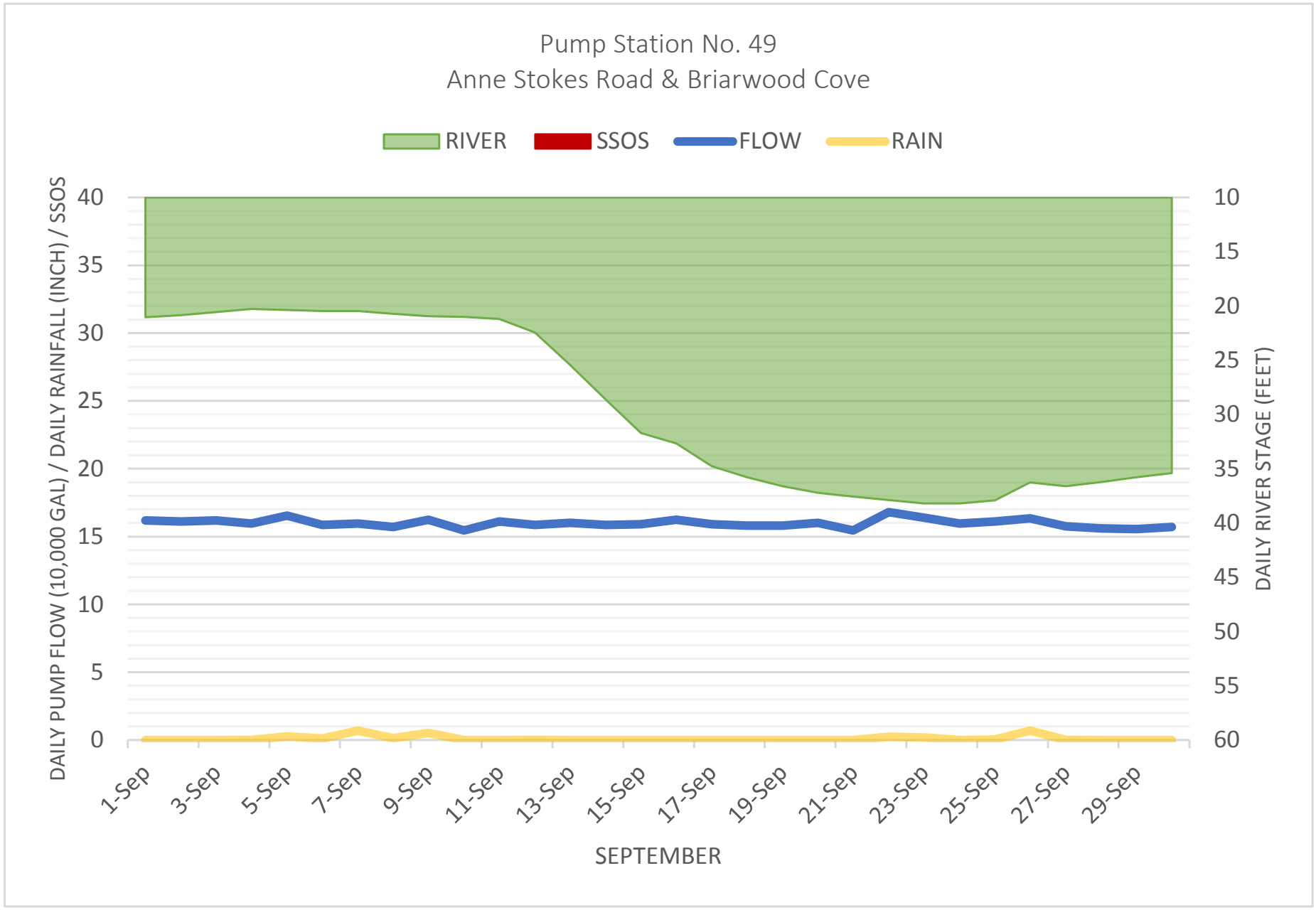
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Anne Stokes Road & Briarwood Cove
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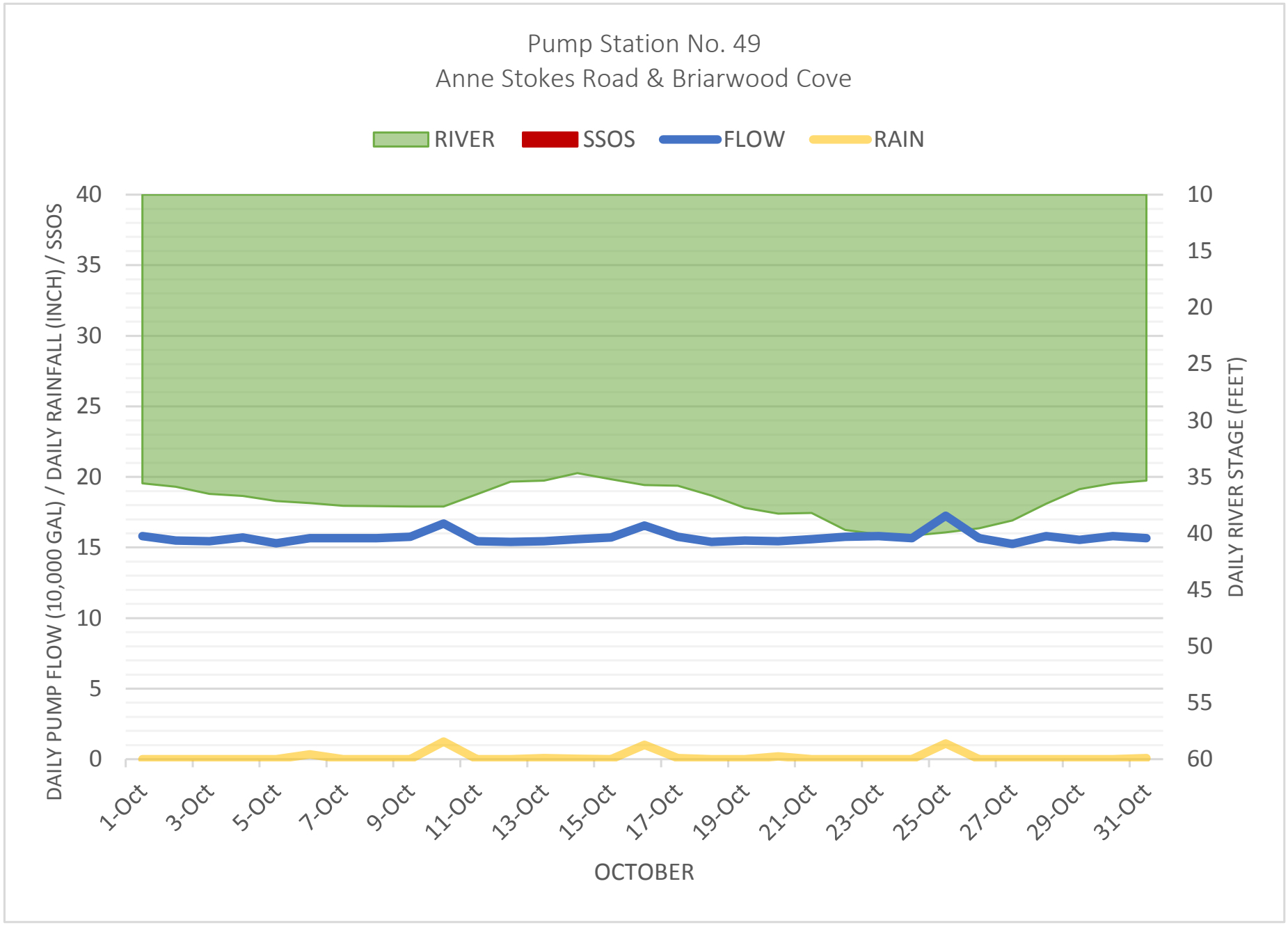
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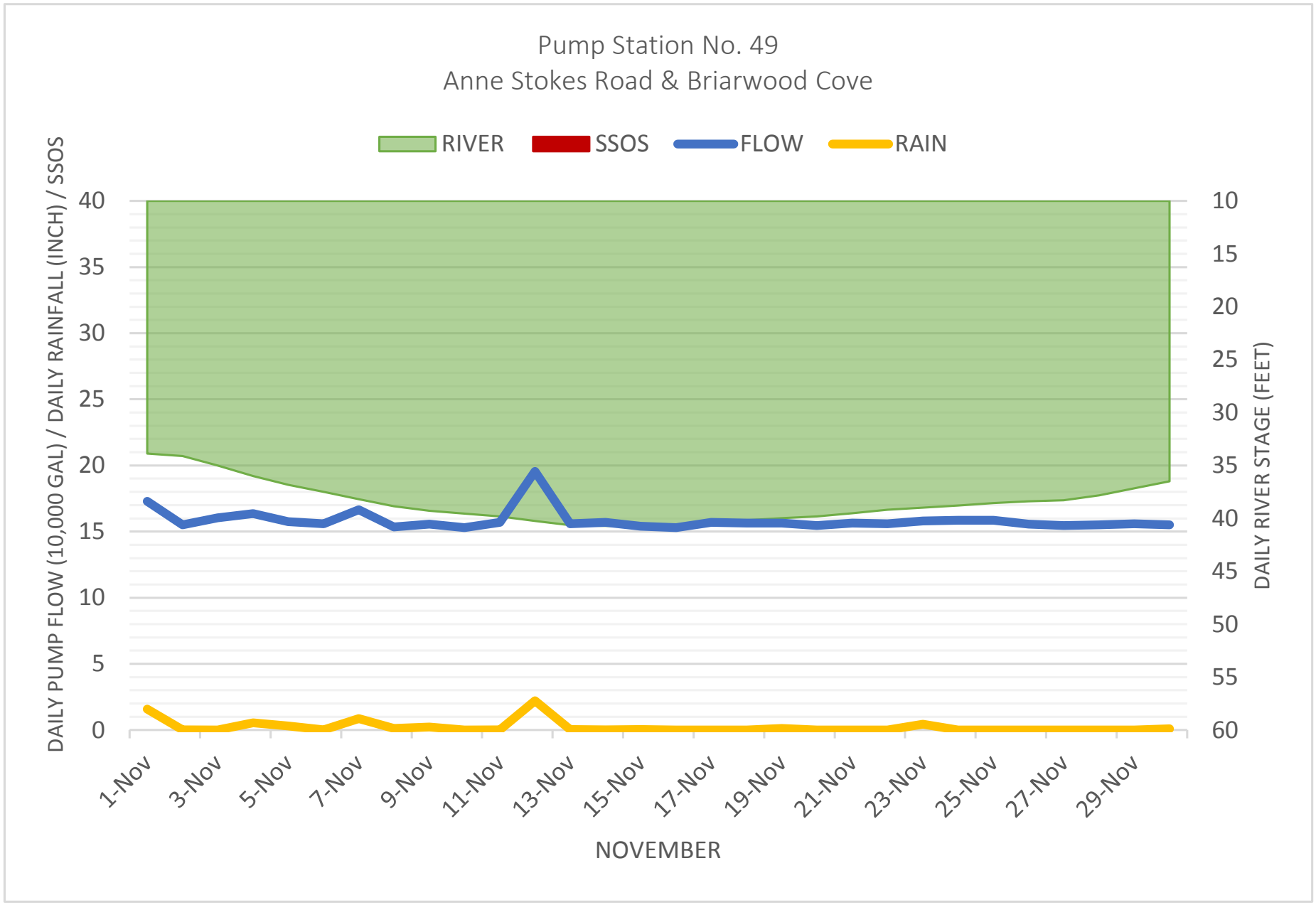
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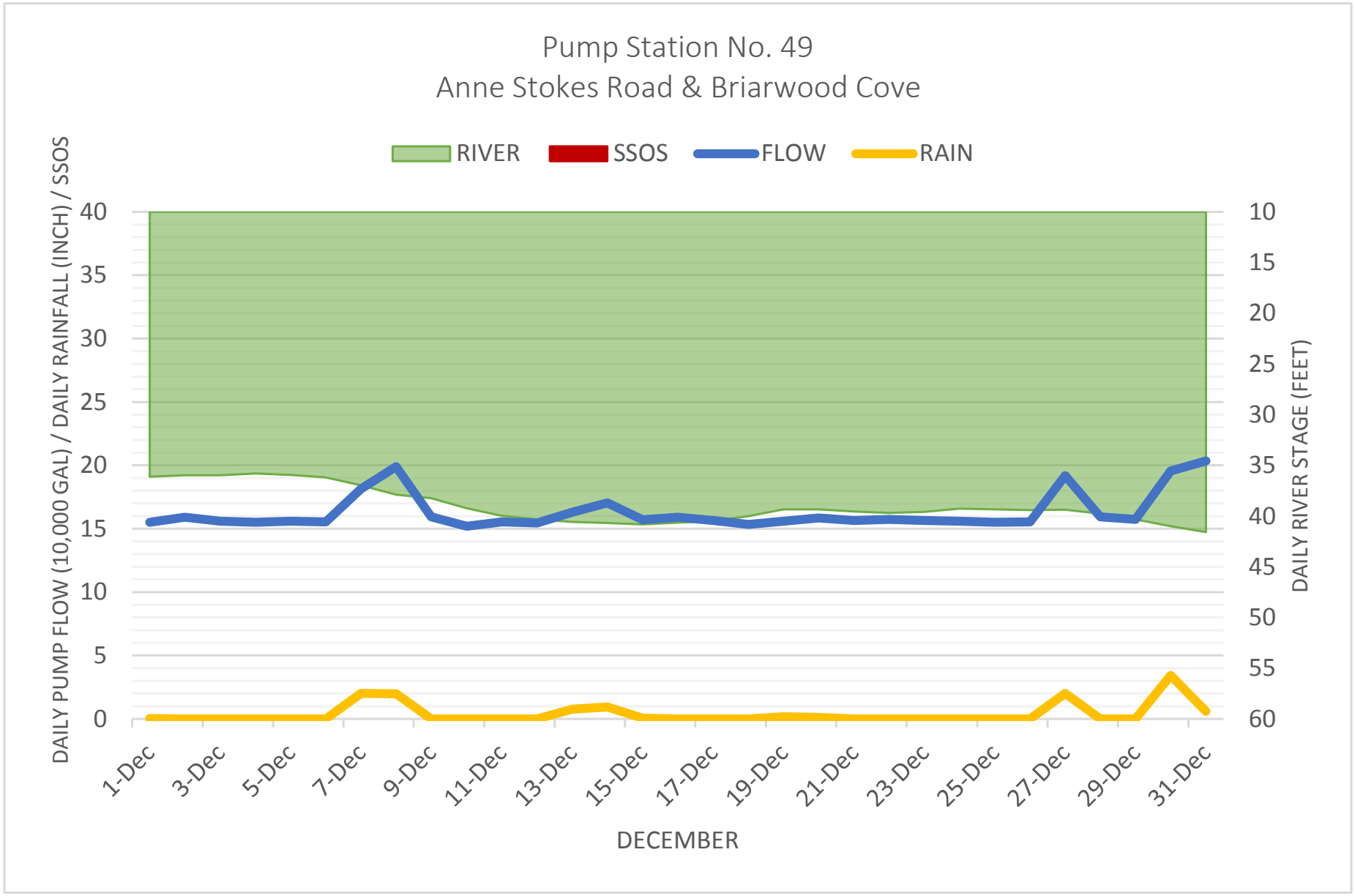
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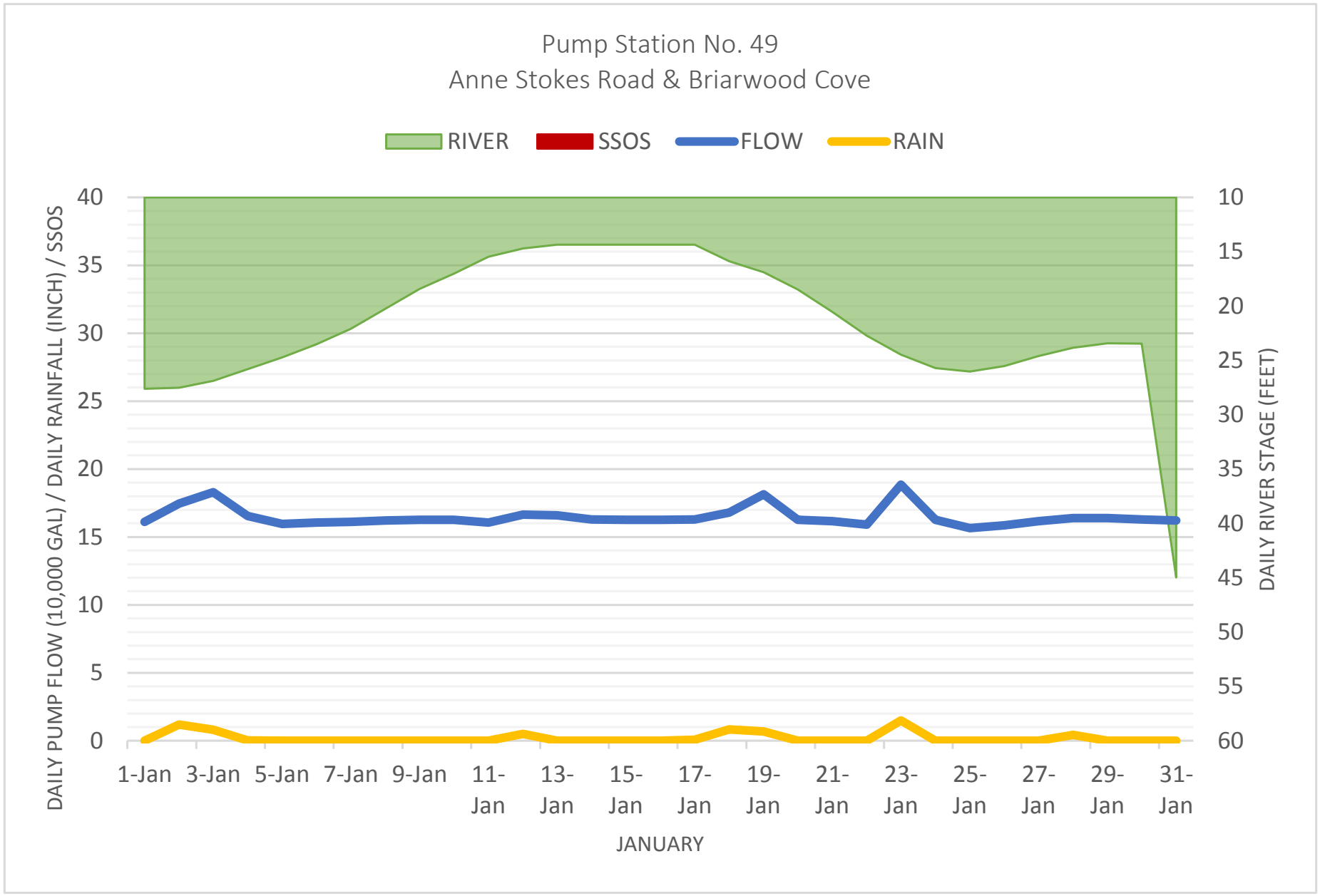
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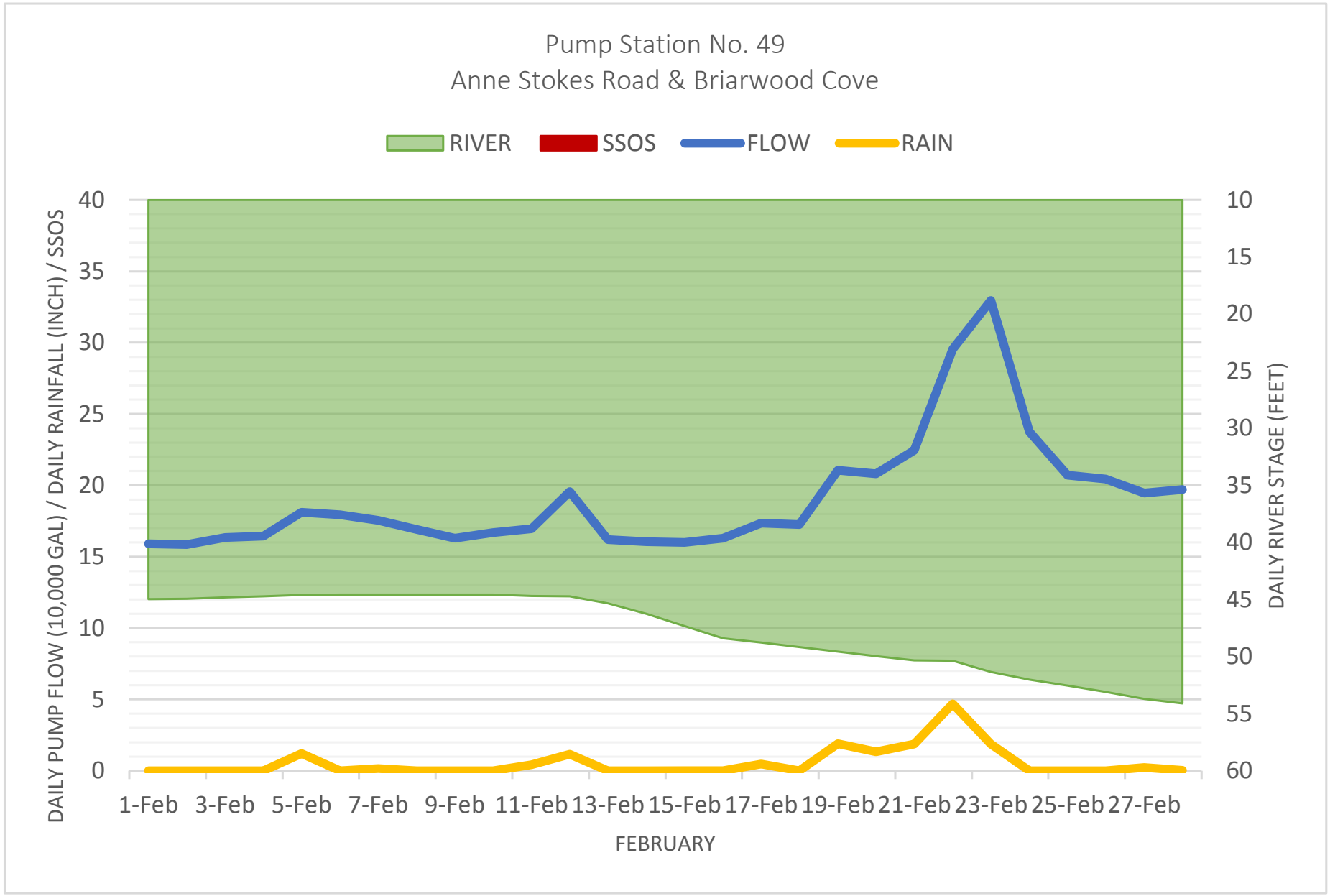
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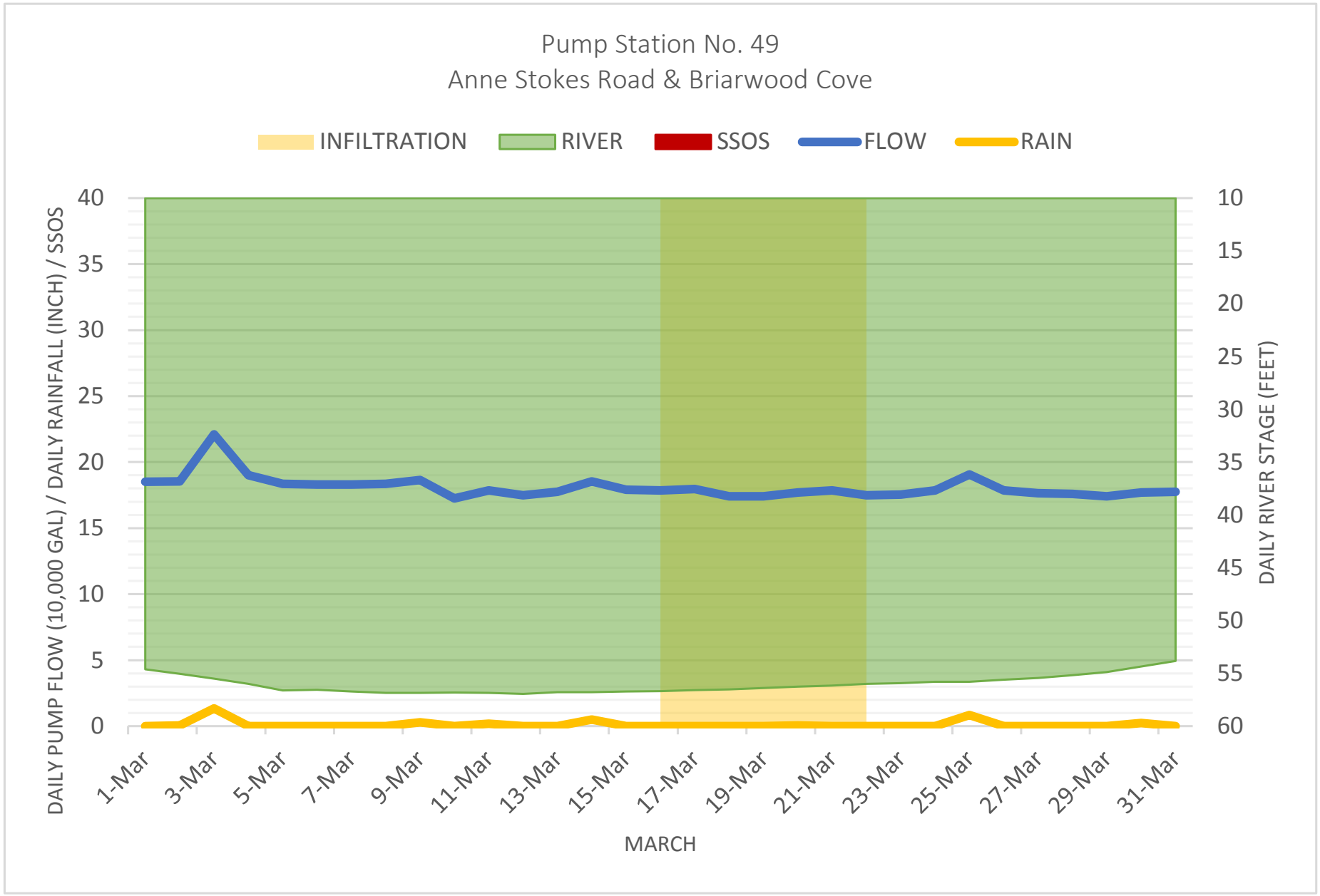
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INFILTRATION
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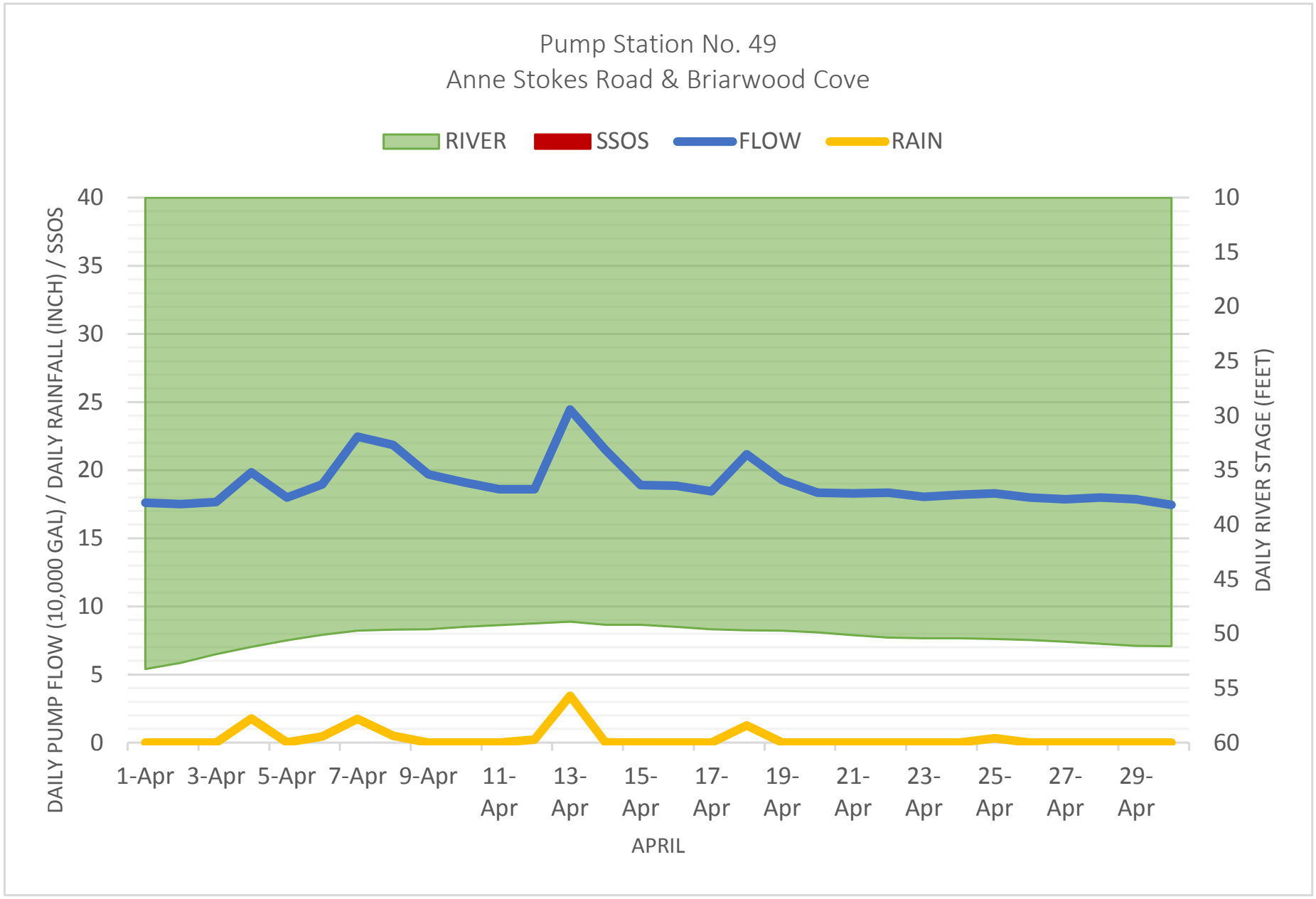
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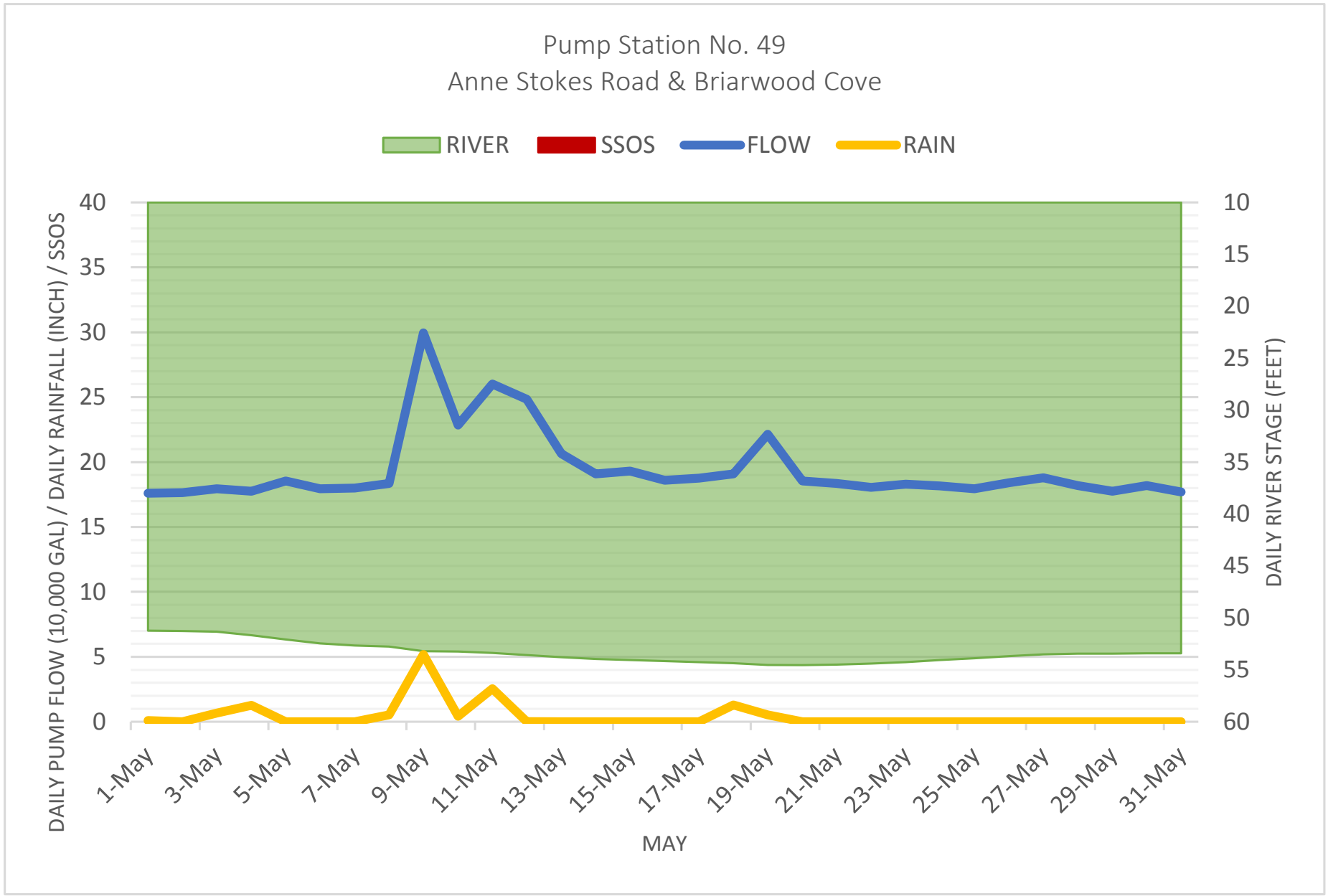
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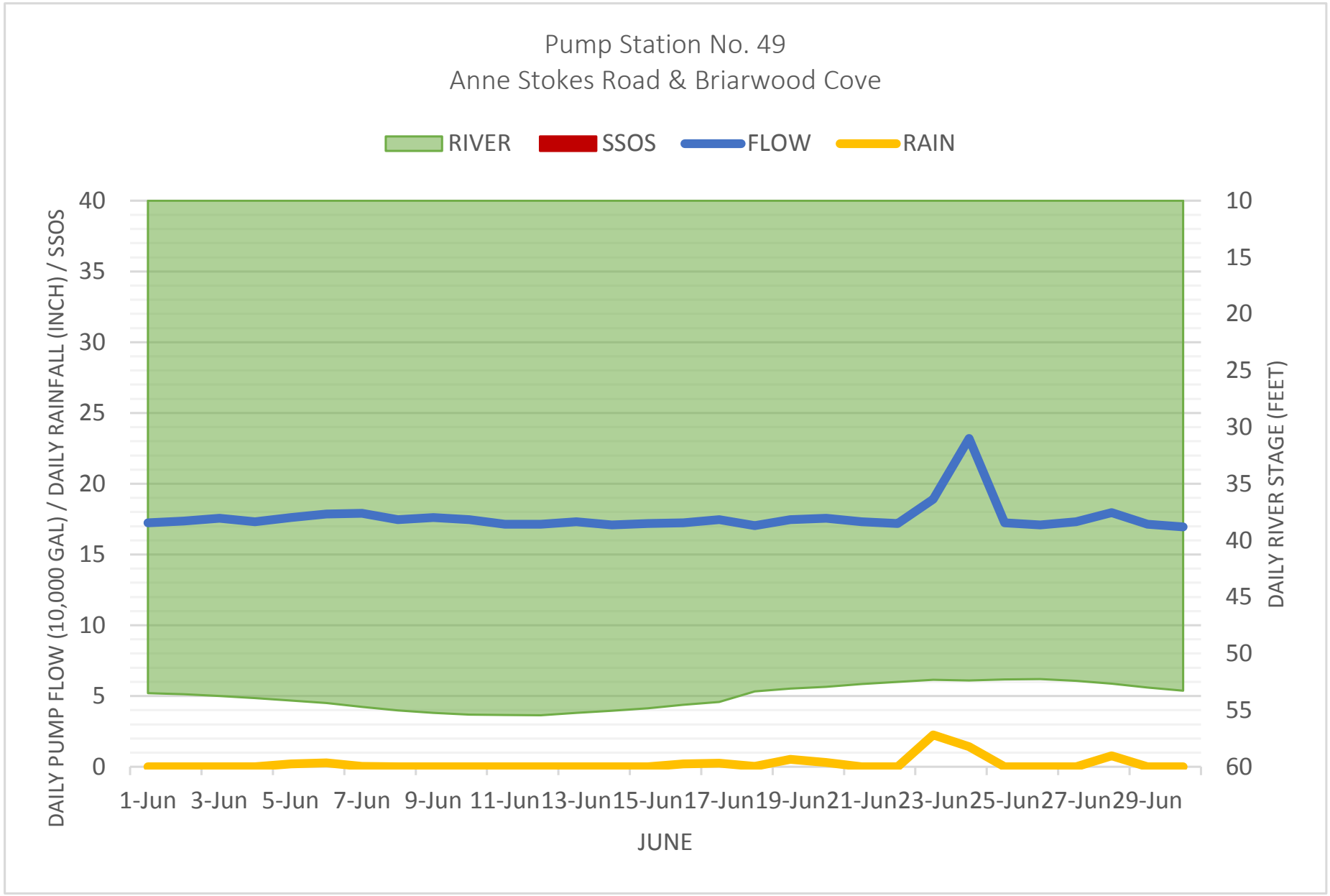
MAY


Pump Station No. 49
Anne Stokes Road & Briarwood Cove
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
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20
25
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35
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1-Jun
3-Jun
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7-Jun
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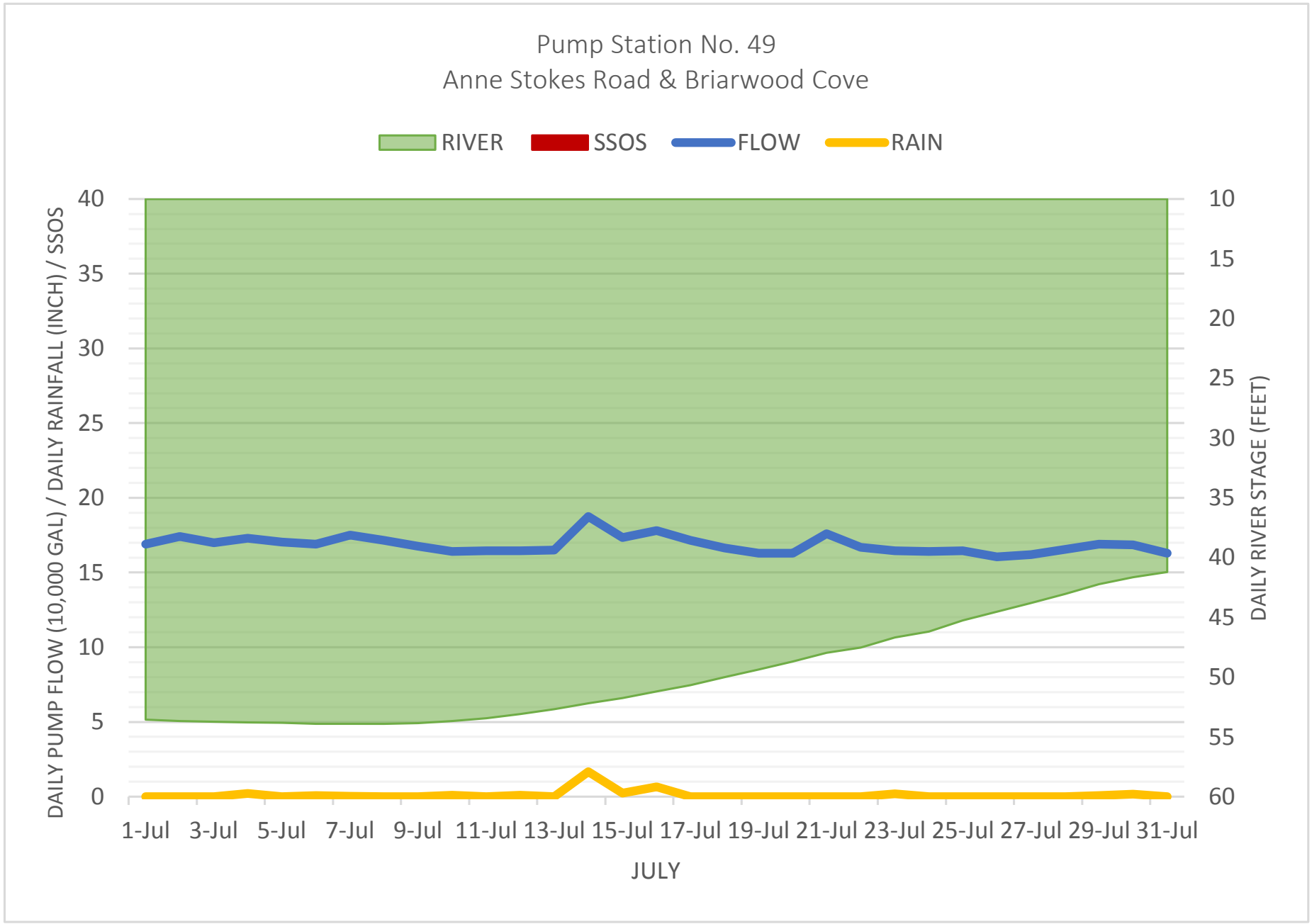
27-Jun
29-Jun
JUNE


Pump Station No. 49
Anne Stokes Road & Briarwood Cove
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
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1-Jul
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7-Jul
9-Jul
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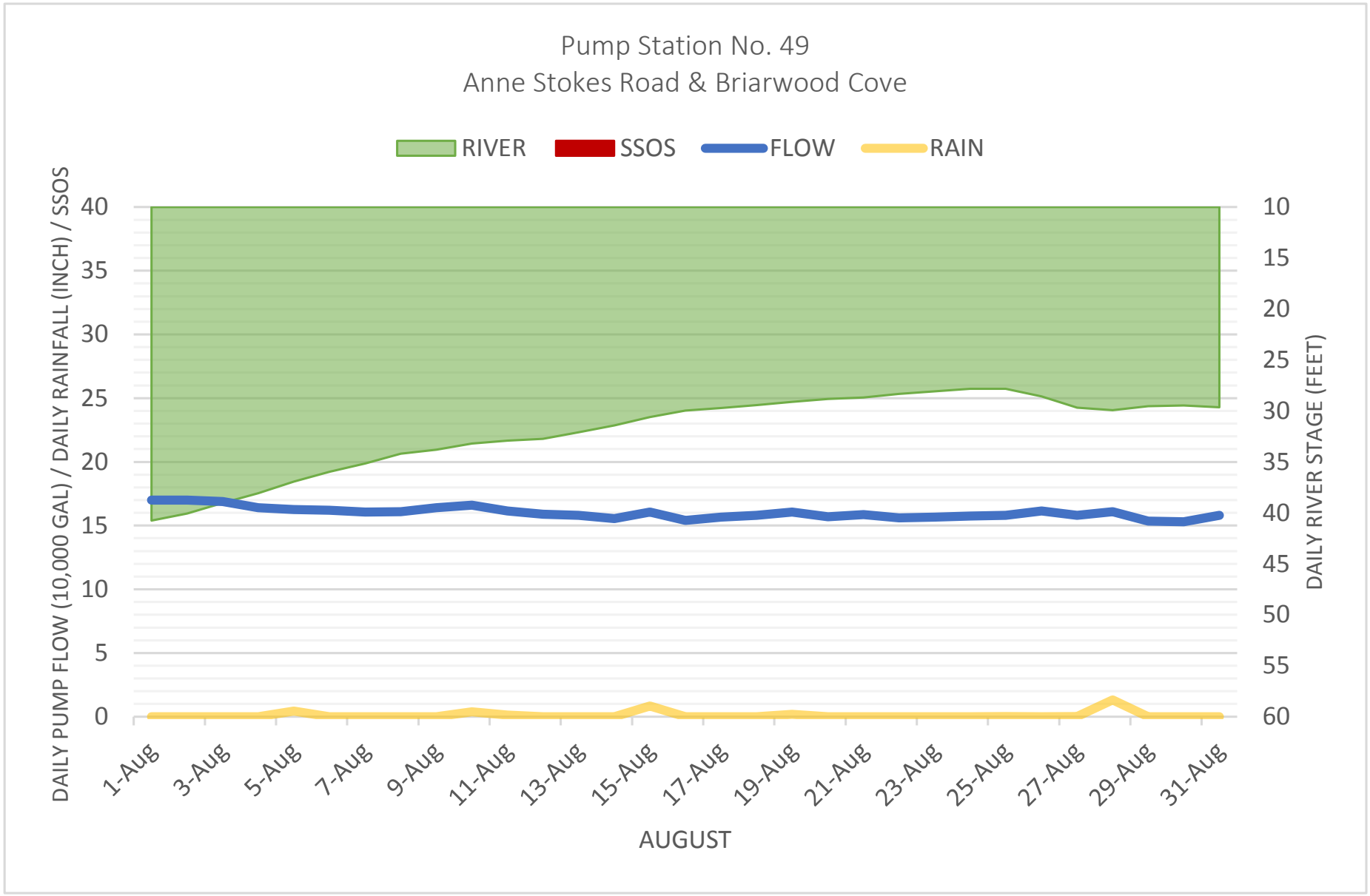
25-Jul
27-Jul
29-Jul
31-Jul
JULY


Pump Station No. 49
Anne Stokes Road & Briarwood Cove
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
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25
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35
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55
60
1-Aug
3-Aug
5-Aug
7-Aug
9-Aug
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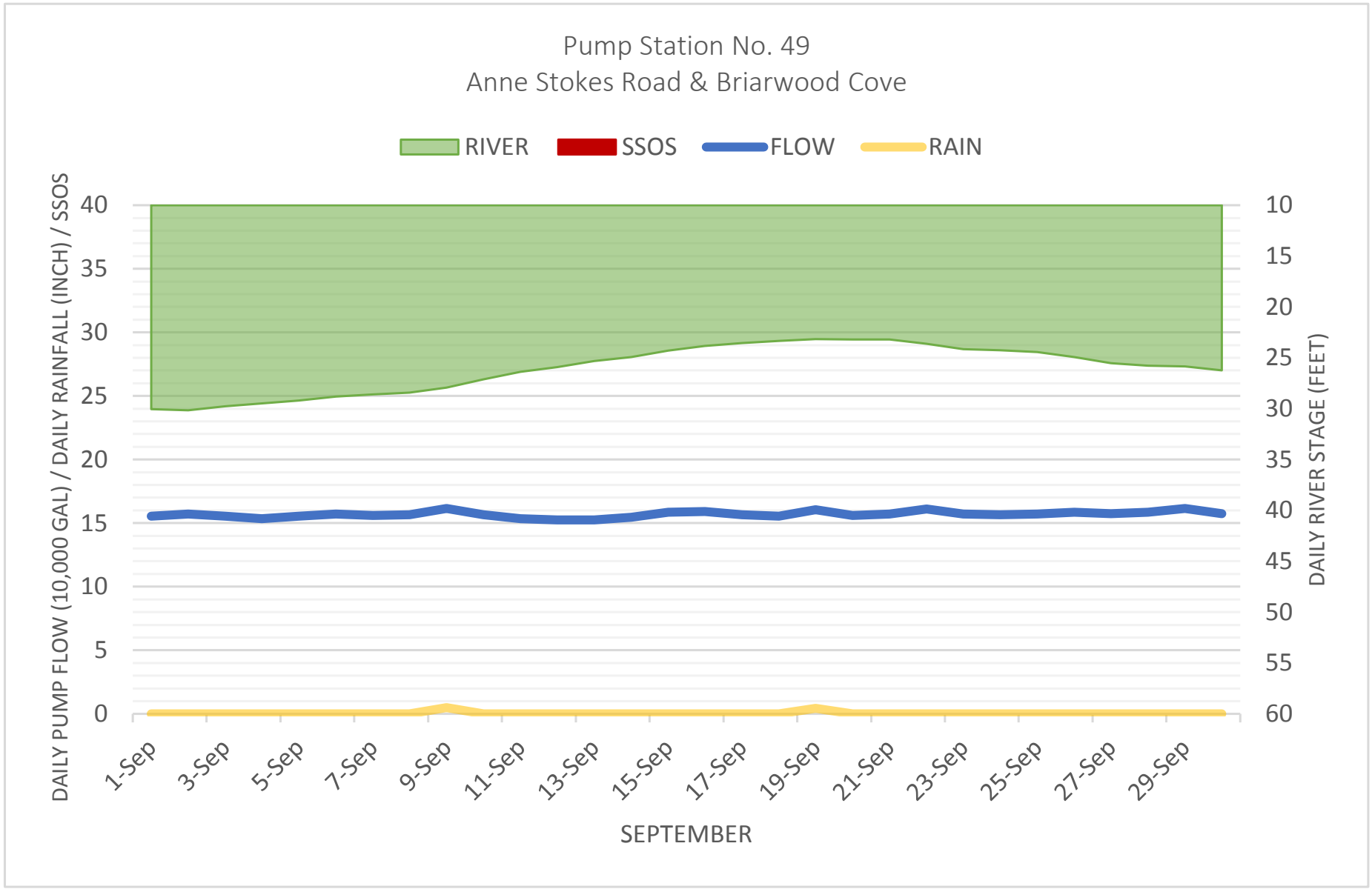
21-Aug
23-Aug
25-Aug
27-Aug
29-Aug
31-Aug
AUGUST


Pump Station No. 49
Anne Stokes Road & Briarwood Cove
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
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10
15
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25
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35
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45
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60
1-Sep
3-Sep
5-Sep
7-Sep
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19-Sep
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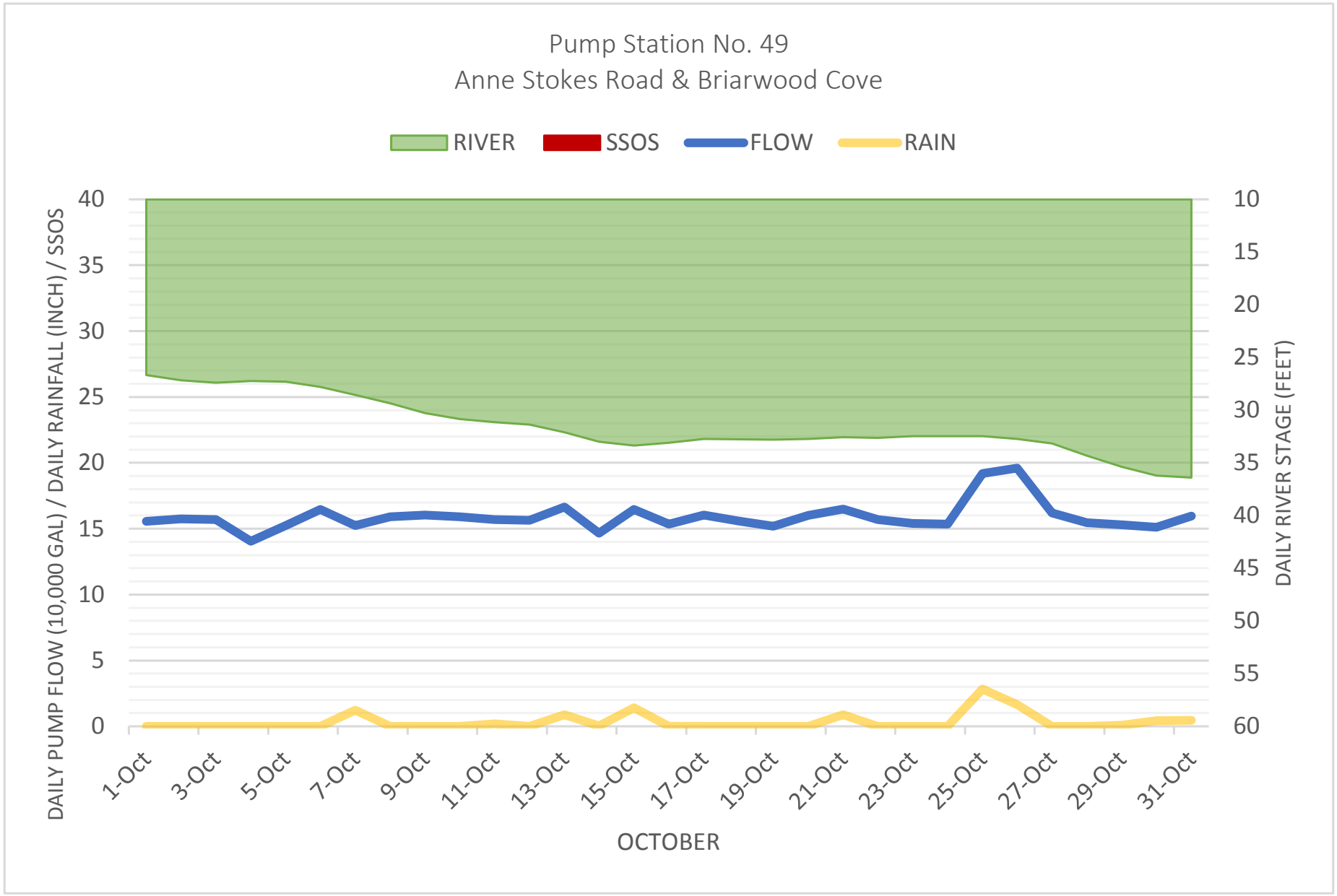
23-Sep
25-Sep
27-Sep
29-Sep
SEPTEMBER


Pump Station No. 49
Anne Stokes Road & Briarwood Cove
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Oct
3-Oct
5-Oct
7-Oct
9-Oct
11-Oct
13-Oct
15-Oct
17-Oct
19-Oct
21-Oct
23-Oct
25-Oct
27-Oct
29-Oct
31-Oct
OCTOBER

APPENDIX 15

MS11/PS37 I/I WORKSHEET

MS11/PS37
INFLOW & INFILTRATION WORKSHEET

Infiltration

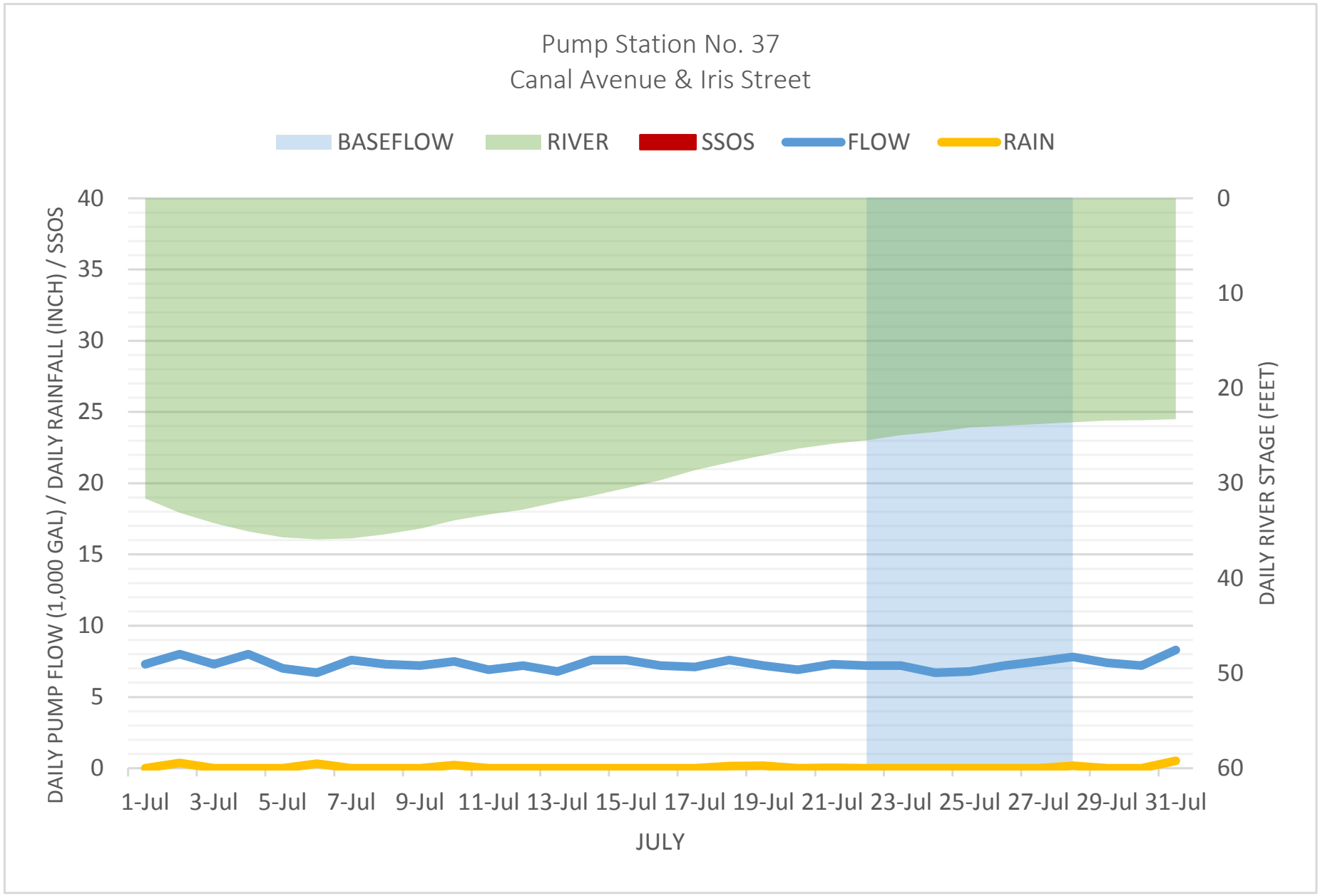
	feet	miles	diameter	inch-miles	
10" Gravity	420	0.08	10	0.795455	
8" Gravity	13945	2.64	8	21.12879	
laterals	17500	3.31	4	13.25758	
TOTAL PIPE	31865				
				35.18182	**total inch-miles in system**
		maximum average infiltration	inch-miles		
		62,514.2857	35.18	**1776.892**	**total gpd/idm**

Inflow

	feet	miles	diameter	inch-miles	
10" Gravity	420	0.08	10	0.795455	
8" Gravity	13945	2.64	8	21.12879	
laterals	17500	3.31	4	13.25758	
				35.18182	**total inch-miles in system**
		maximum average inflow	inch-miles		
		6,528.5714	35.18	**185.5666**	**total gpd/idm**

APPENDIX 16

MS11/PS37 GRAPHS


Pump Station No. 37
Canal Avenue & Iris Street
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
0
10
20
30
40
50
60
1-Jul
3-Jul
5-Jul
7-Jul
9-Jul
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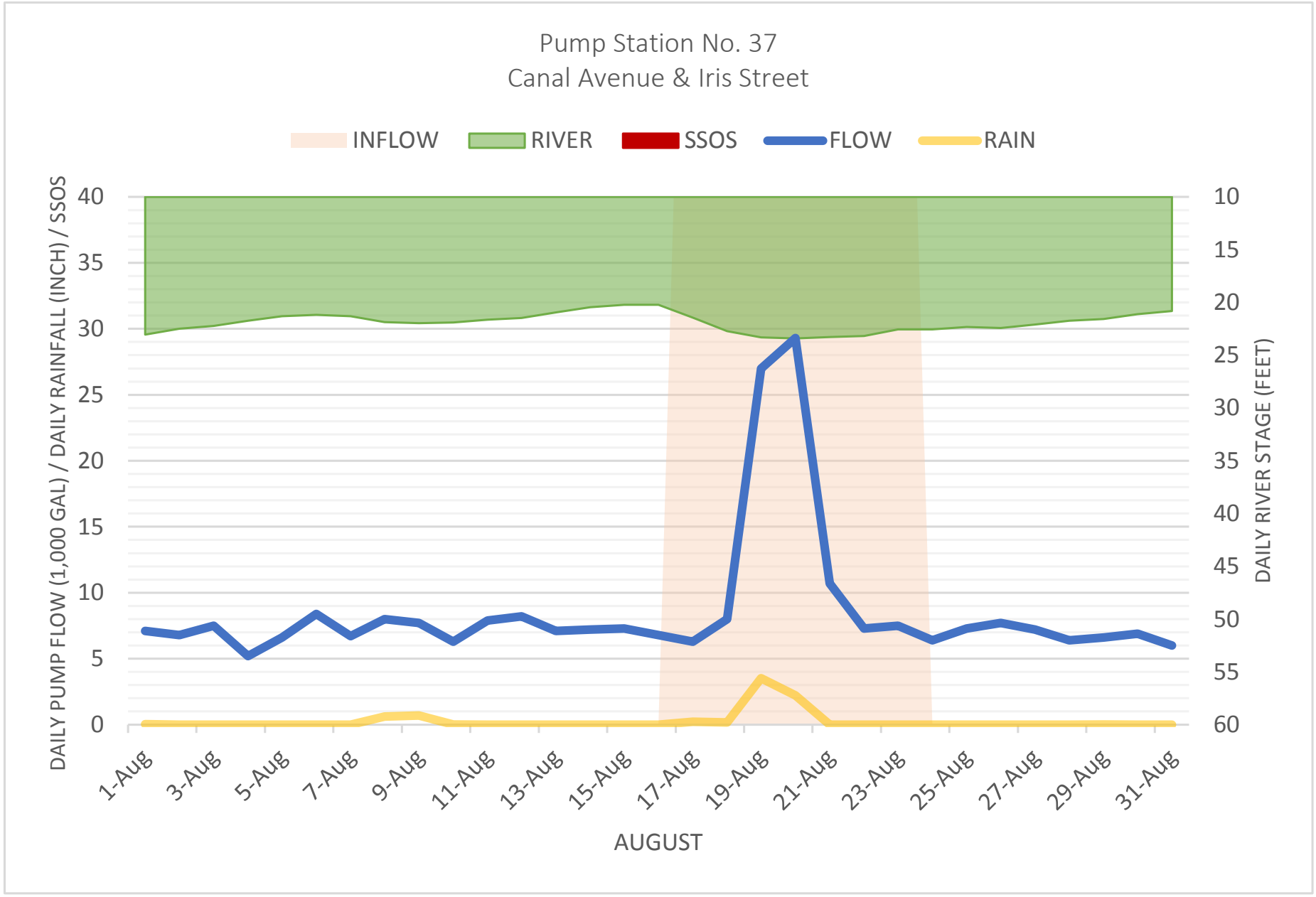
19-Jul
21-Jul
23-Jul
25-Jul
27-Jul
29-Jul
31-Jul
JULY


Pump Station No. 37
Canal Avenue & Iris Street
INFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
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55
60
1-Aug
3-Aug
5-Aug
7-Aug
9-Aug
11-Aug
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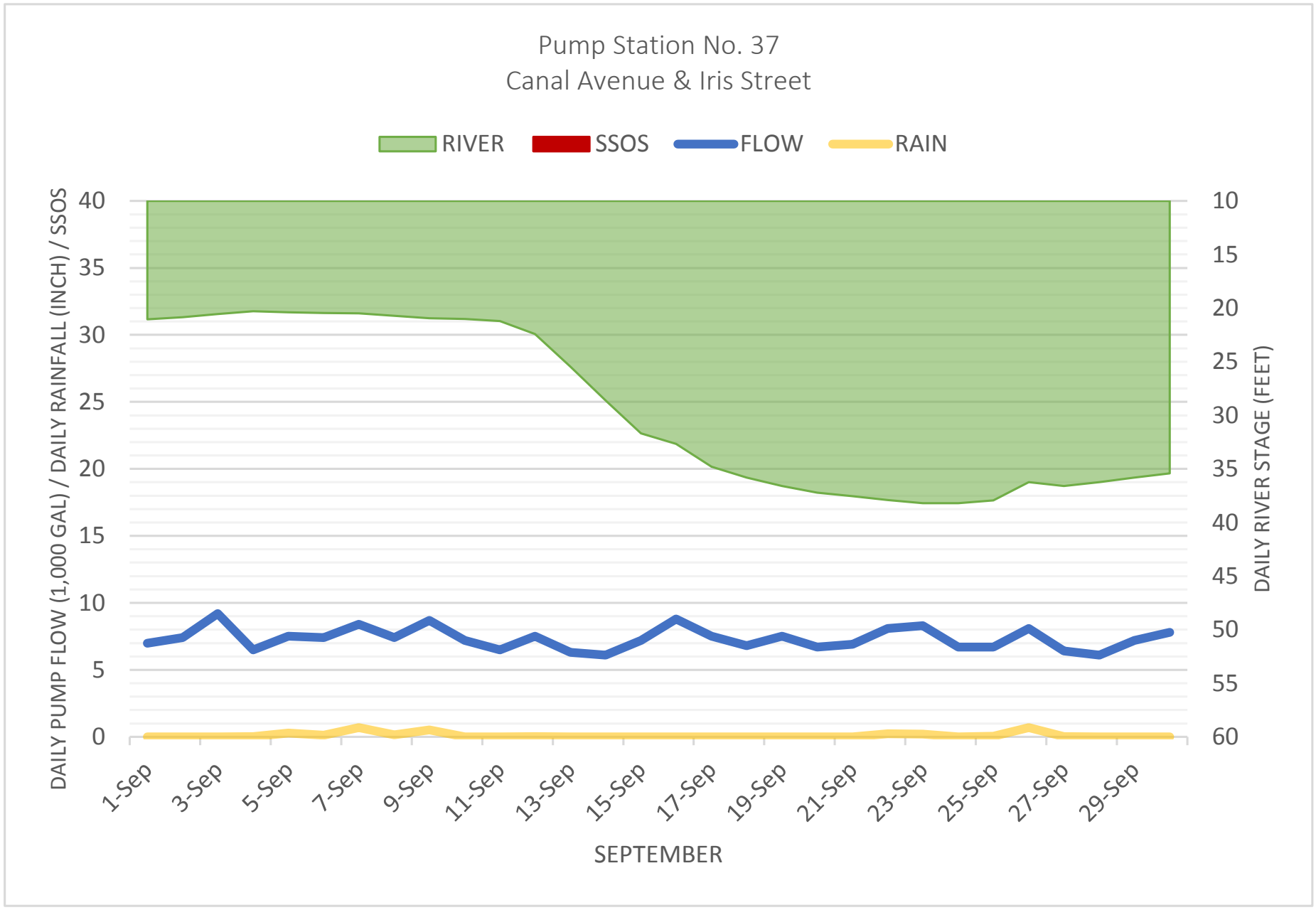
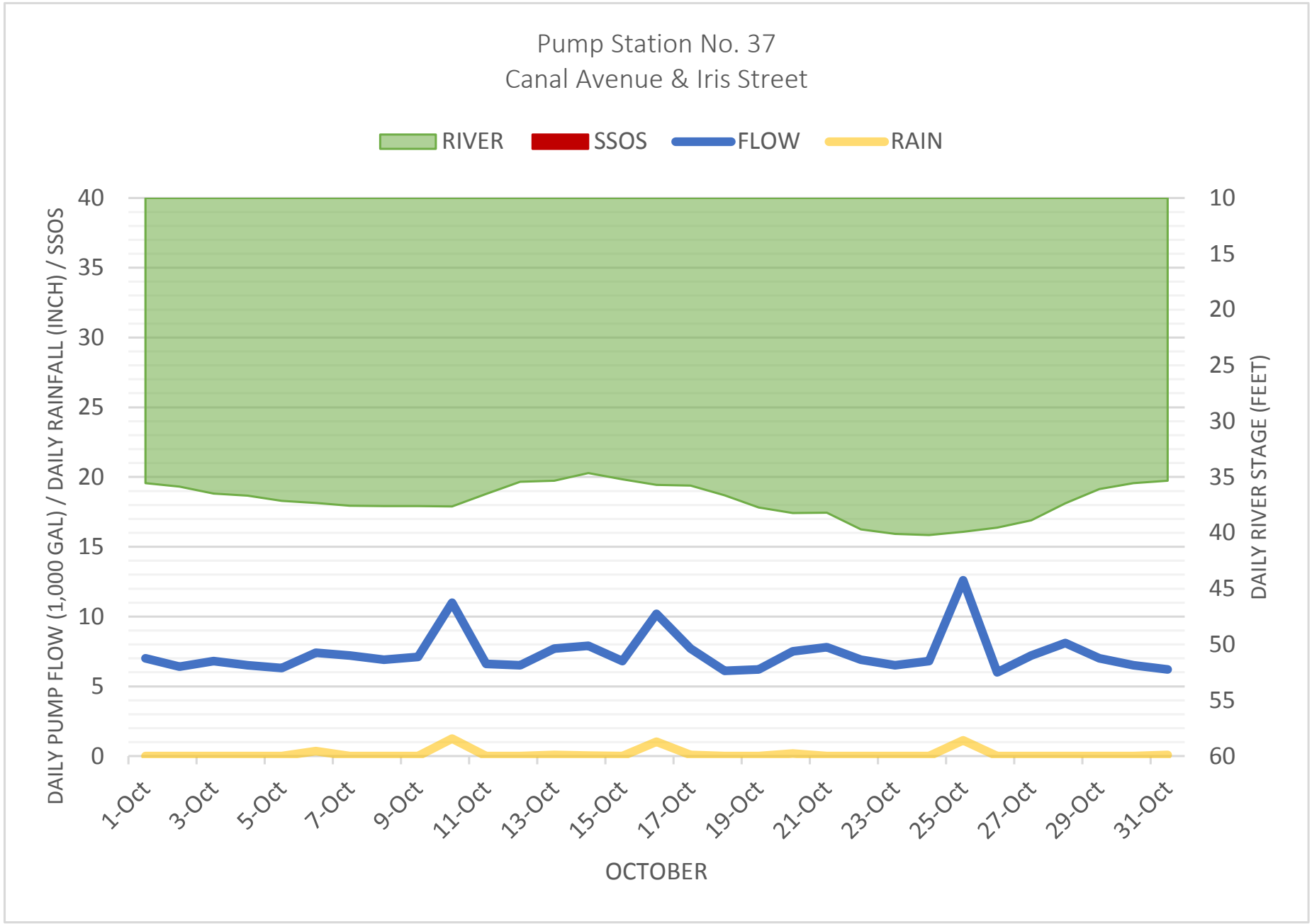
17-Aug
19-Aug
21-Aug
23-Aug
25-Aug
27-Aug
29-Aug
31-Aug
AUGUST


Pump Station No. 37
Canal Avenue & Iris Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Sep
3-Sep
5-Sep
7-Sep
9-Sep
11-Sep
13-Sep
15-Sep
17-Sep
19-Sep
21-Sep
23-Sep
25-Sep
27-Sep
29-Sep
SEPTEMBER


Pump Station No. 37
Canal Avenue & Iris Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
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35
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1-Oct
3-Oct
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7-Oct
9-Oct
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23-Oct
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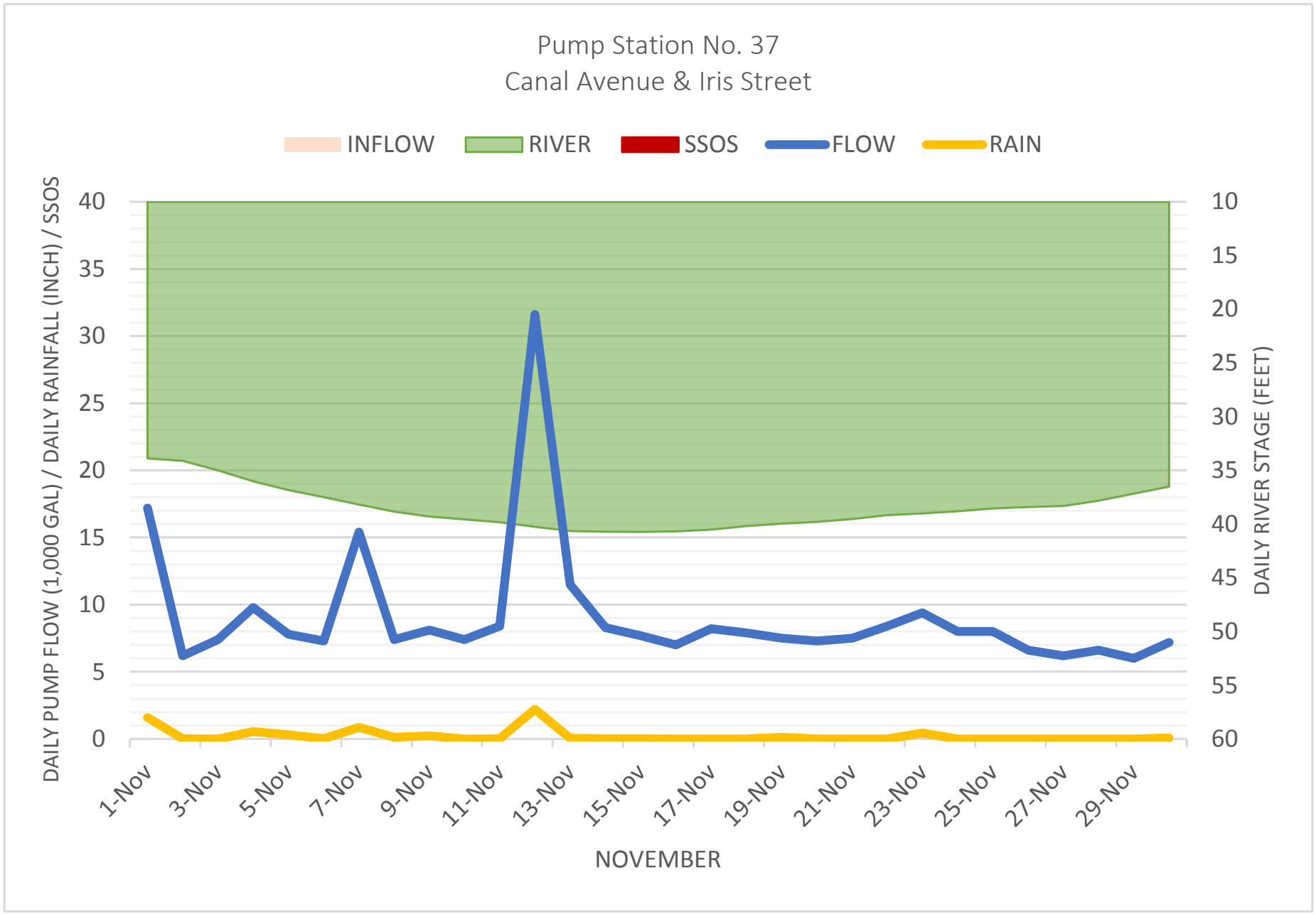
29-Oct
31-Oct
OCTOBER


Pump Station No. 37
Canal Avenue & Iris Street
INFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
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1-Nov
3-Nov
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7-Nov
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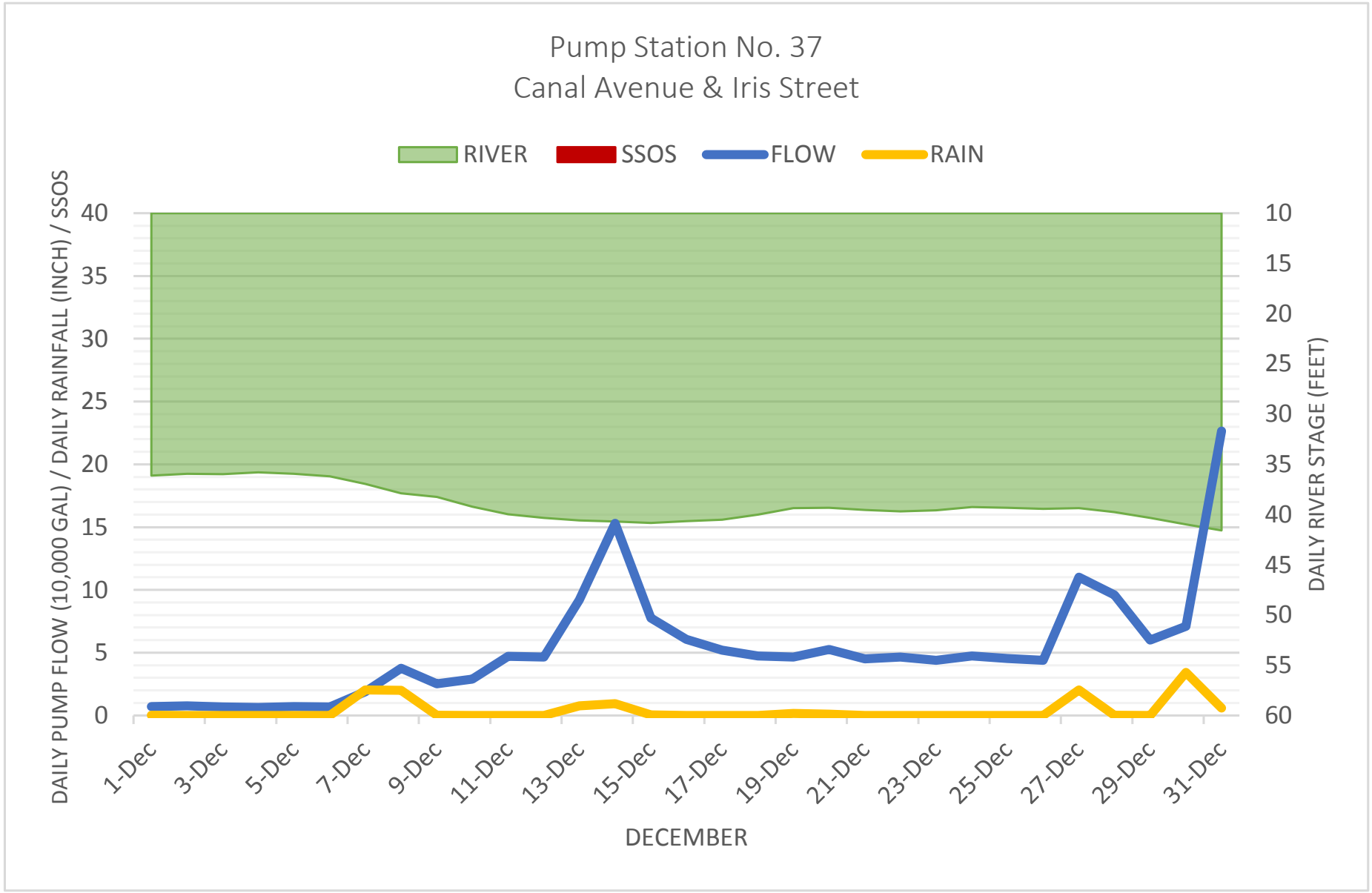
27-Nov
29-Nov
NOVEMBER


Pump Station No. 37
Canal Avenue & Iris Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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20
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1-Dec
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7-Dec
9-Dec
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17-Dec
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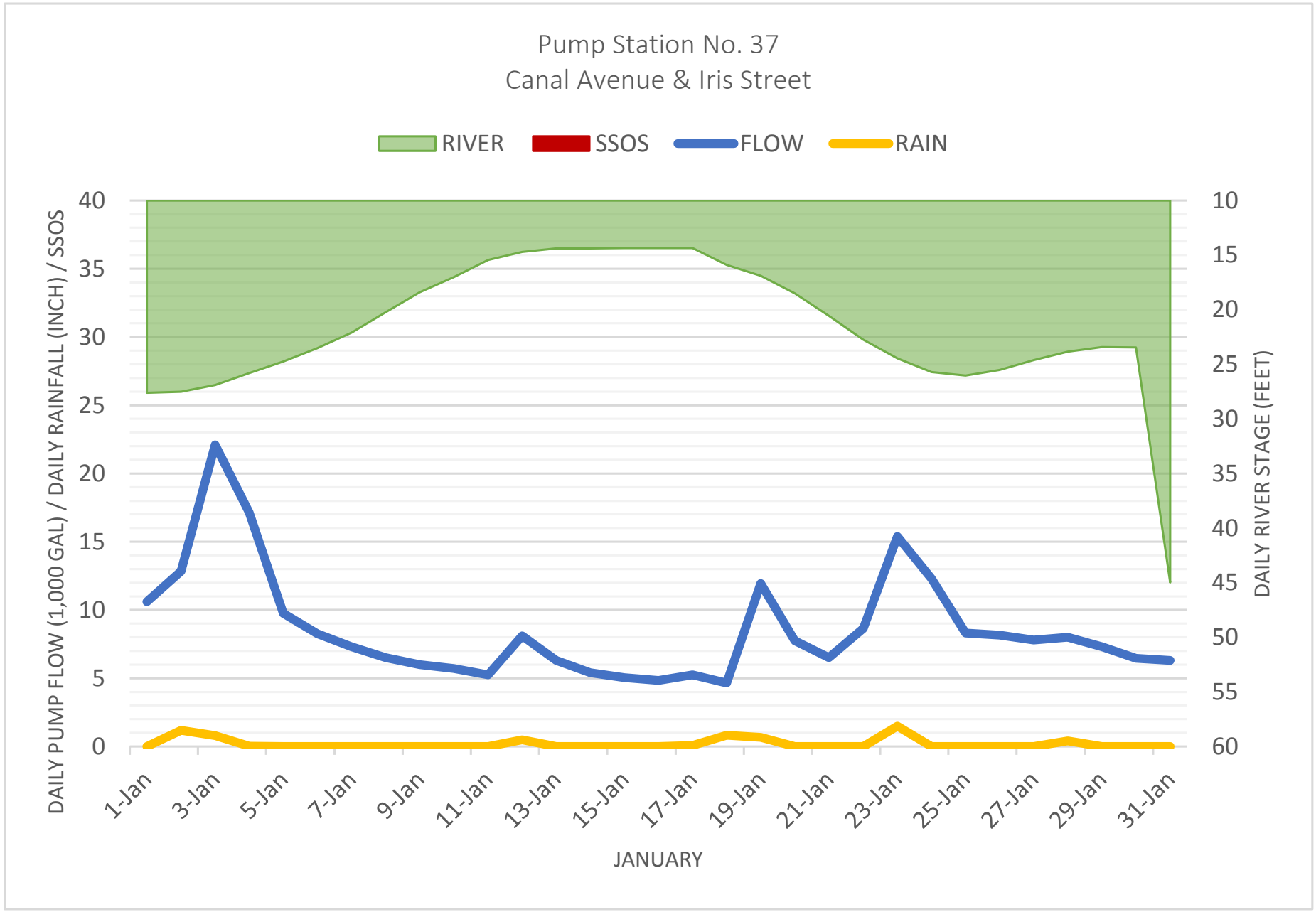
29-Dec
31-Dec
DECEMBER


Pump Station No. 37
Canal Avenue & Iris Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
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30
35
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60
1-Jan
3-Jan
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7-Jan
9-Jan
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23-Jan
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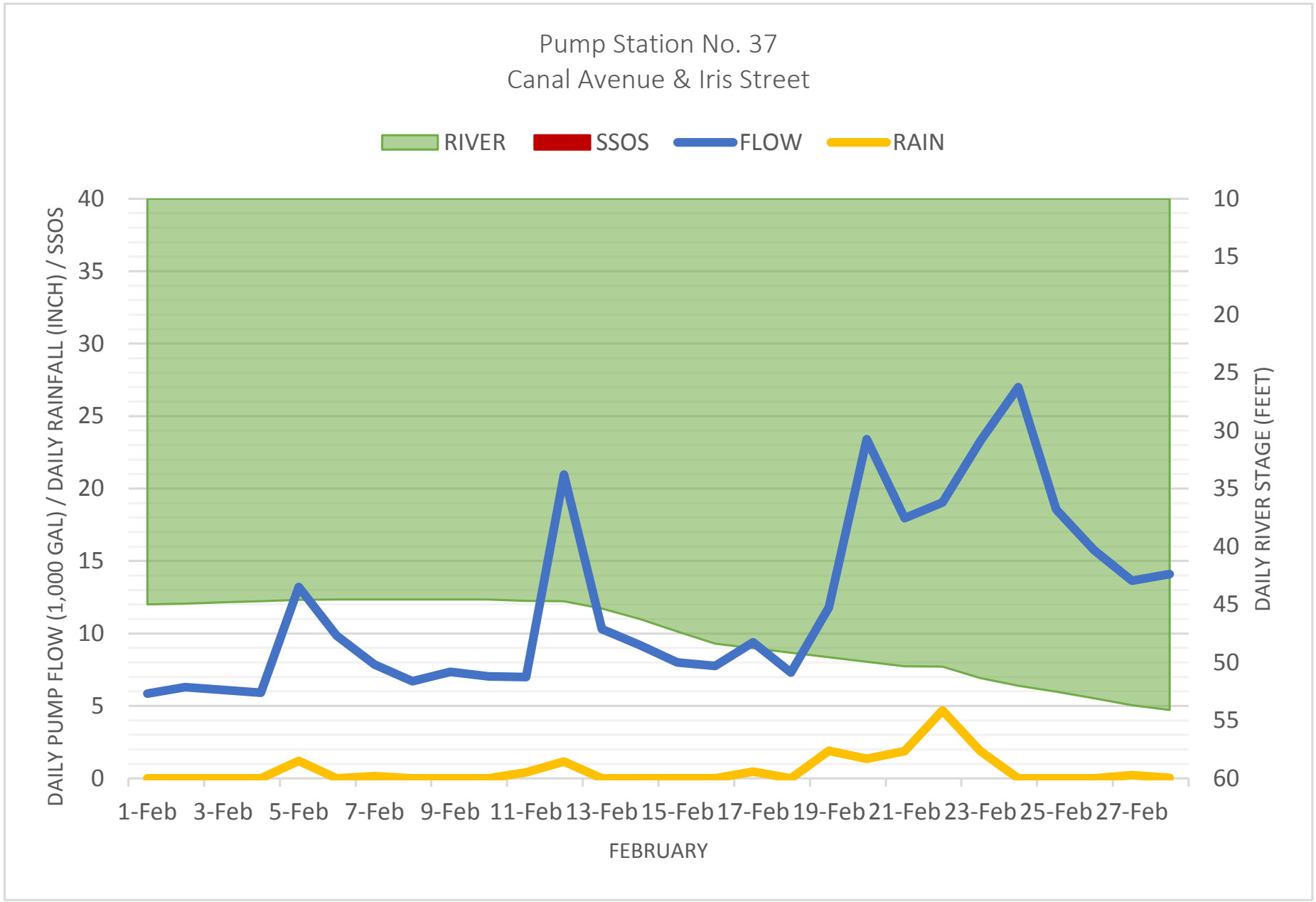
27-Jan
29-Jan
31-Jan
JANUARY


Pump Station No. 37
Canal Avenue & Iris Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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35
30
25
20
15
10
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1-Feb
3-Feb
5-Feb
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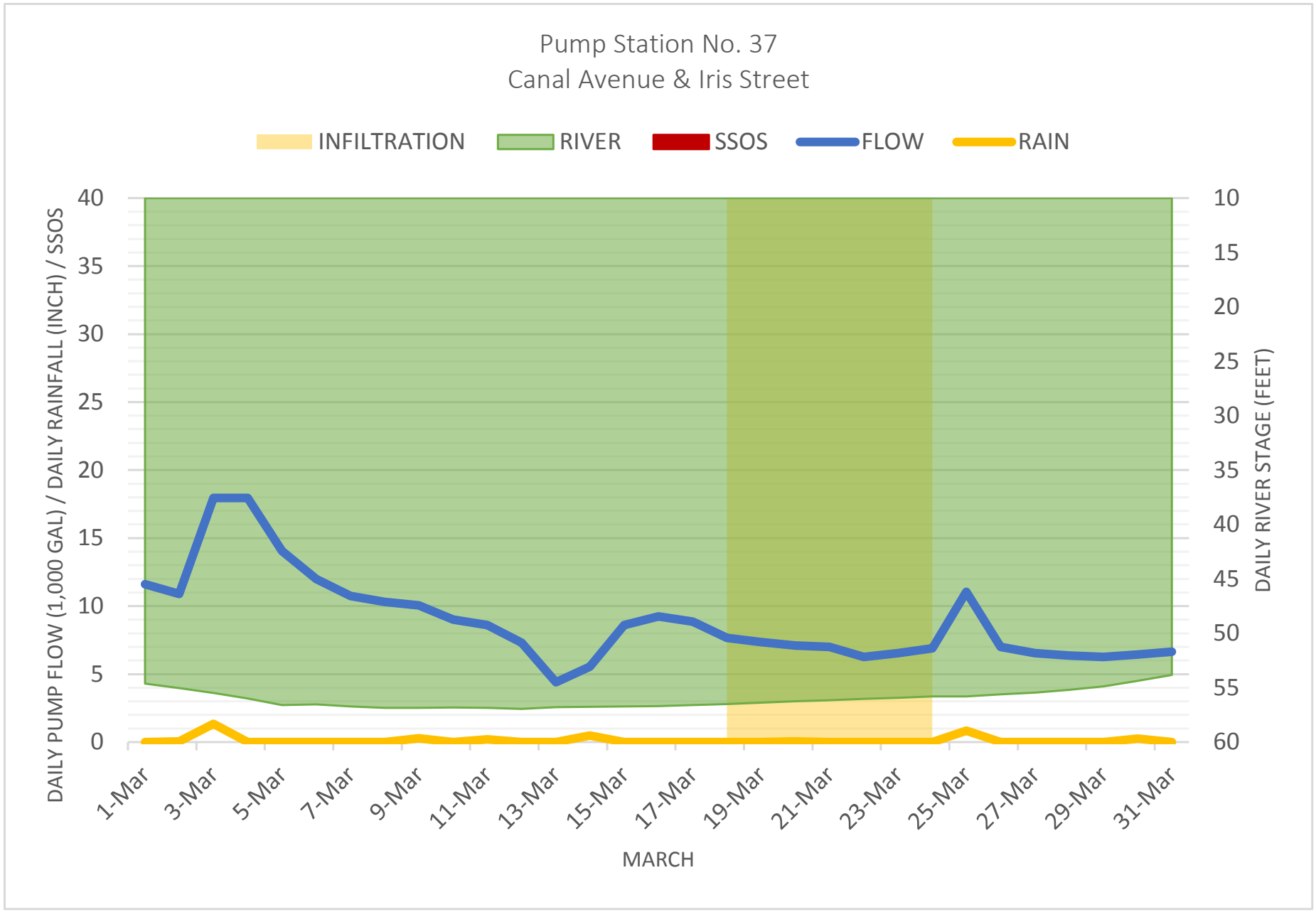
17-Feb
19-Feb
21-Feb
23-Feb
25-Feb
27-Feb
FEBRUARY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Canal Avenue & Iris Street
INFILTRATION
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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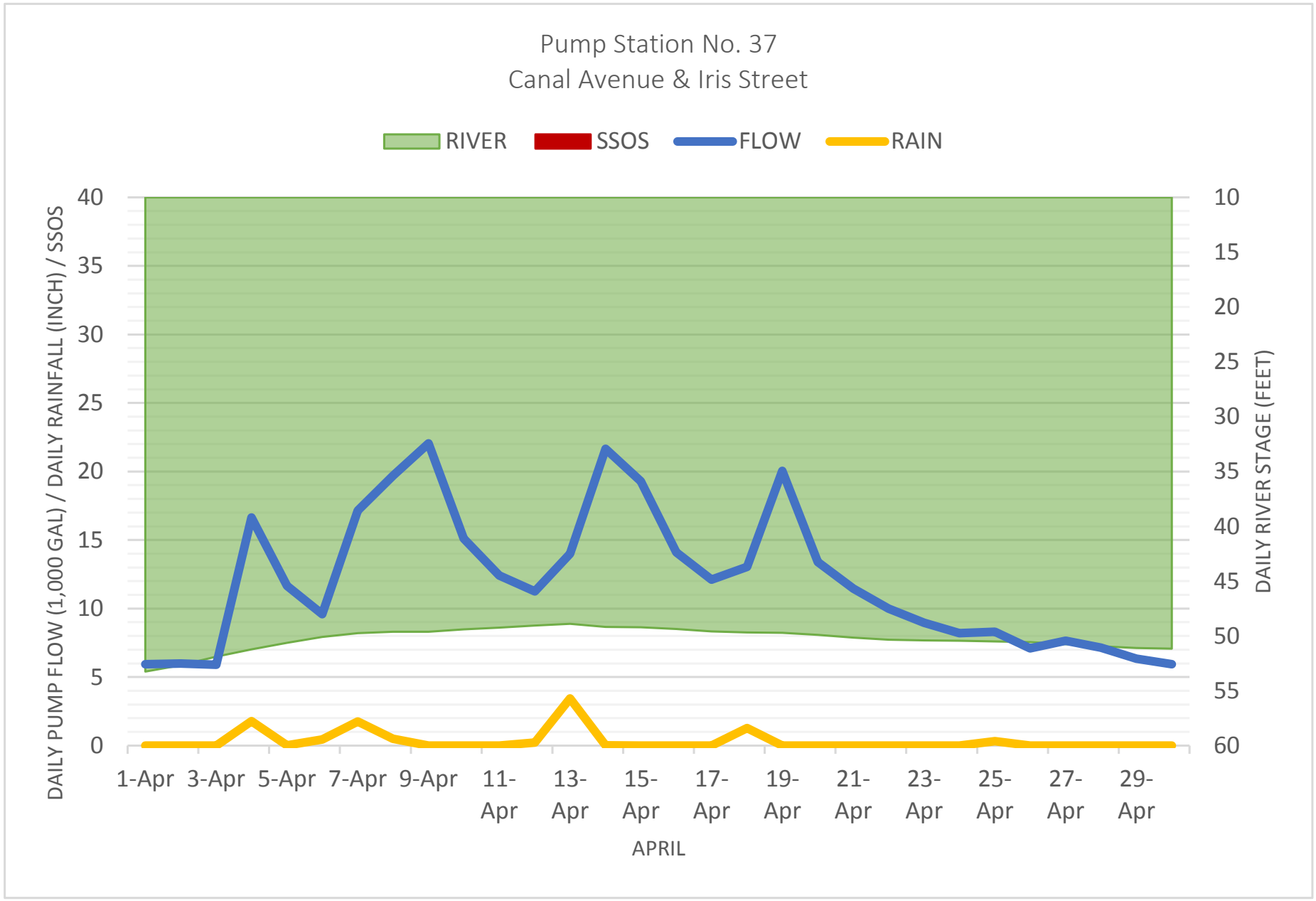
31-Mar
MARCH


Pump Station No. 37
Canal Avenue & Iris Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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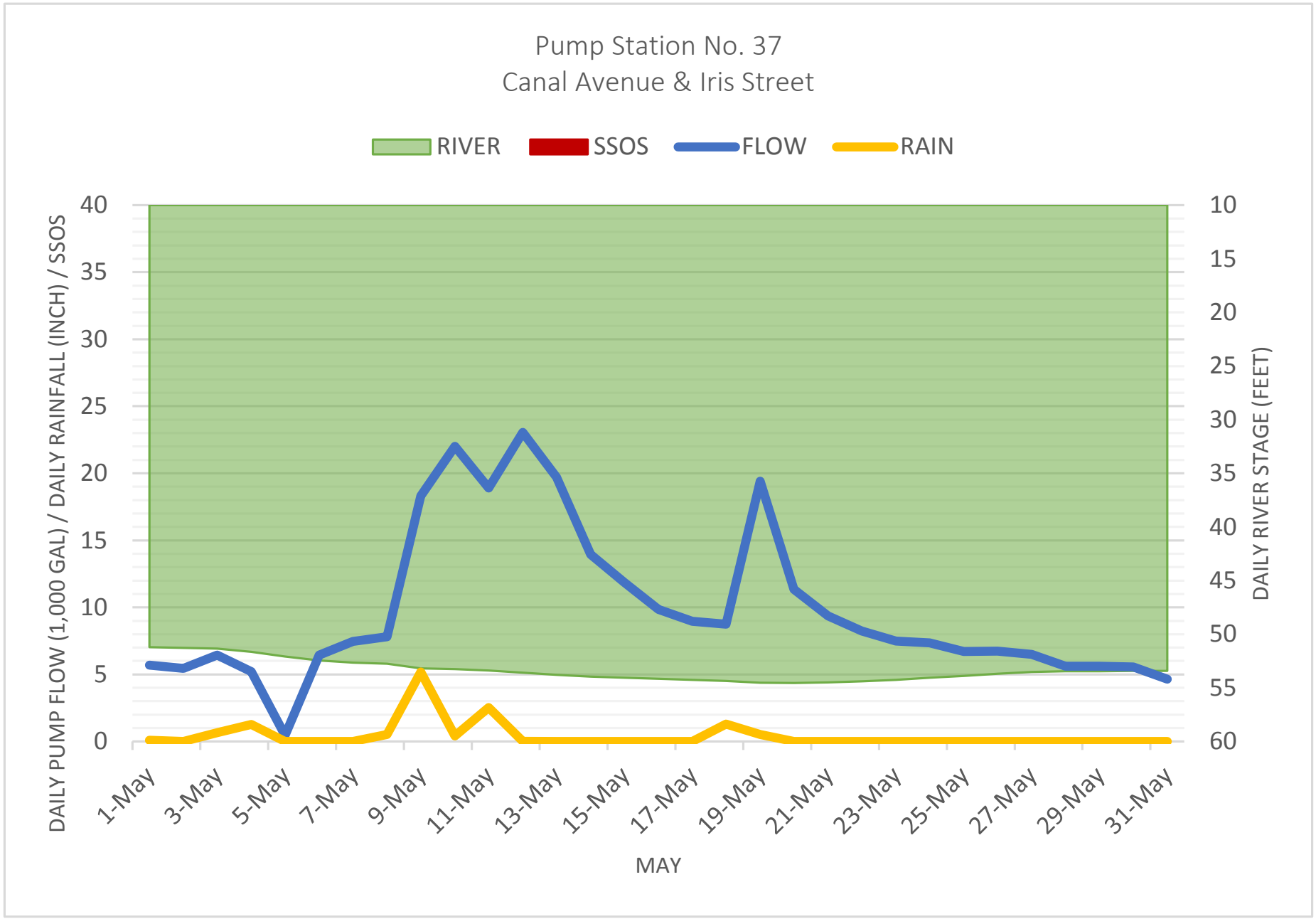
27-Apr
29-Apr
APRIL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Canal Avenue & Iris Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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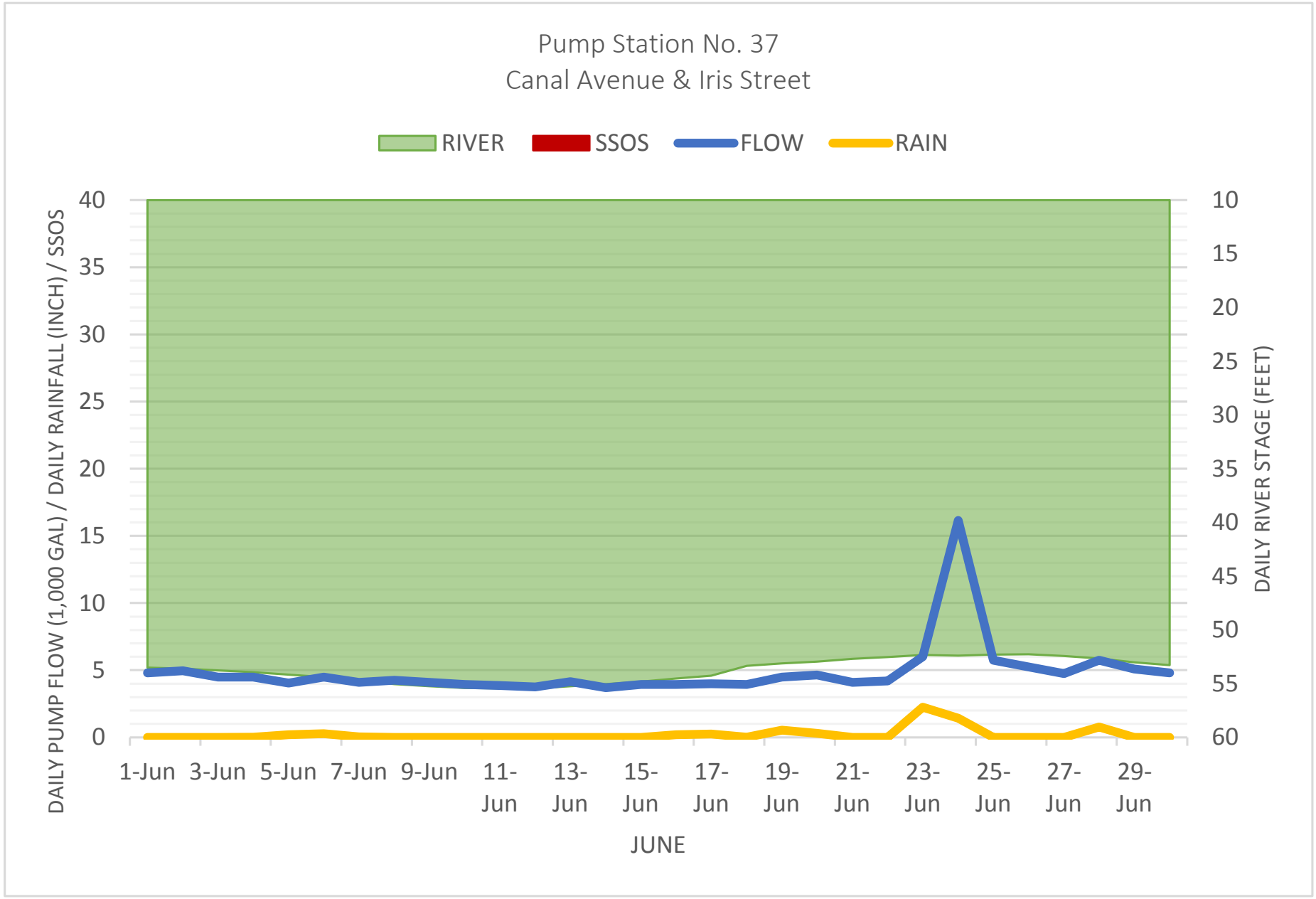
29-May
31-May
MAY


Pump Station No. 37
Canal Avenue & Iris Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
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15
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1-Jun
3-Jun
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7-Jun
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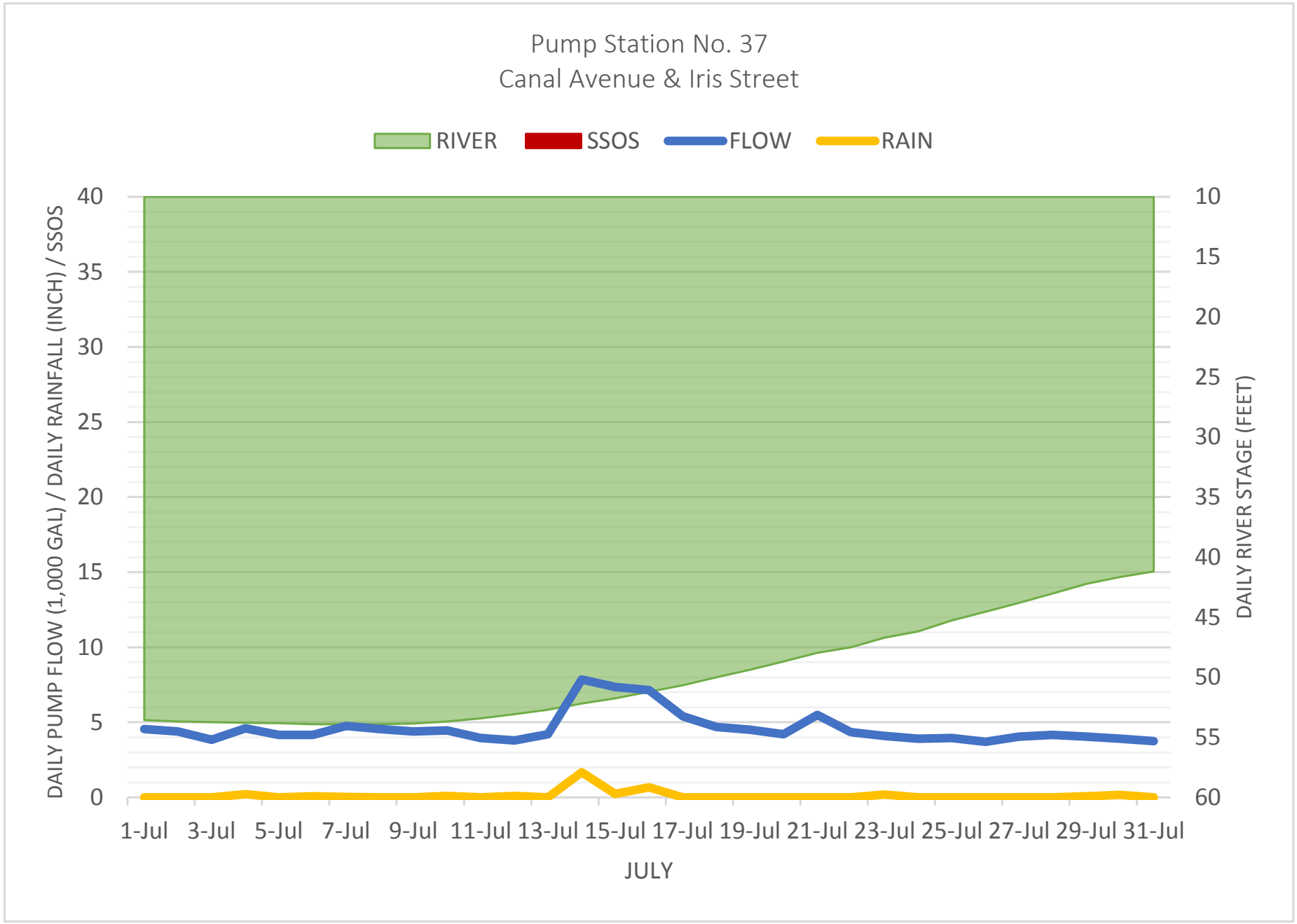
27-Jun
29-Jun
JUNE


Pump Station No. 37
Canal Avenue & Iris Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
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15
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5
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35
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45
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55
60
1-Jul
3-Jul
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7-Jul
9-Jul
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13-Jul
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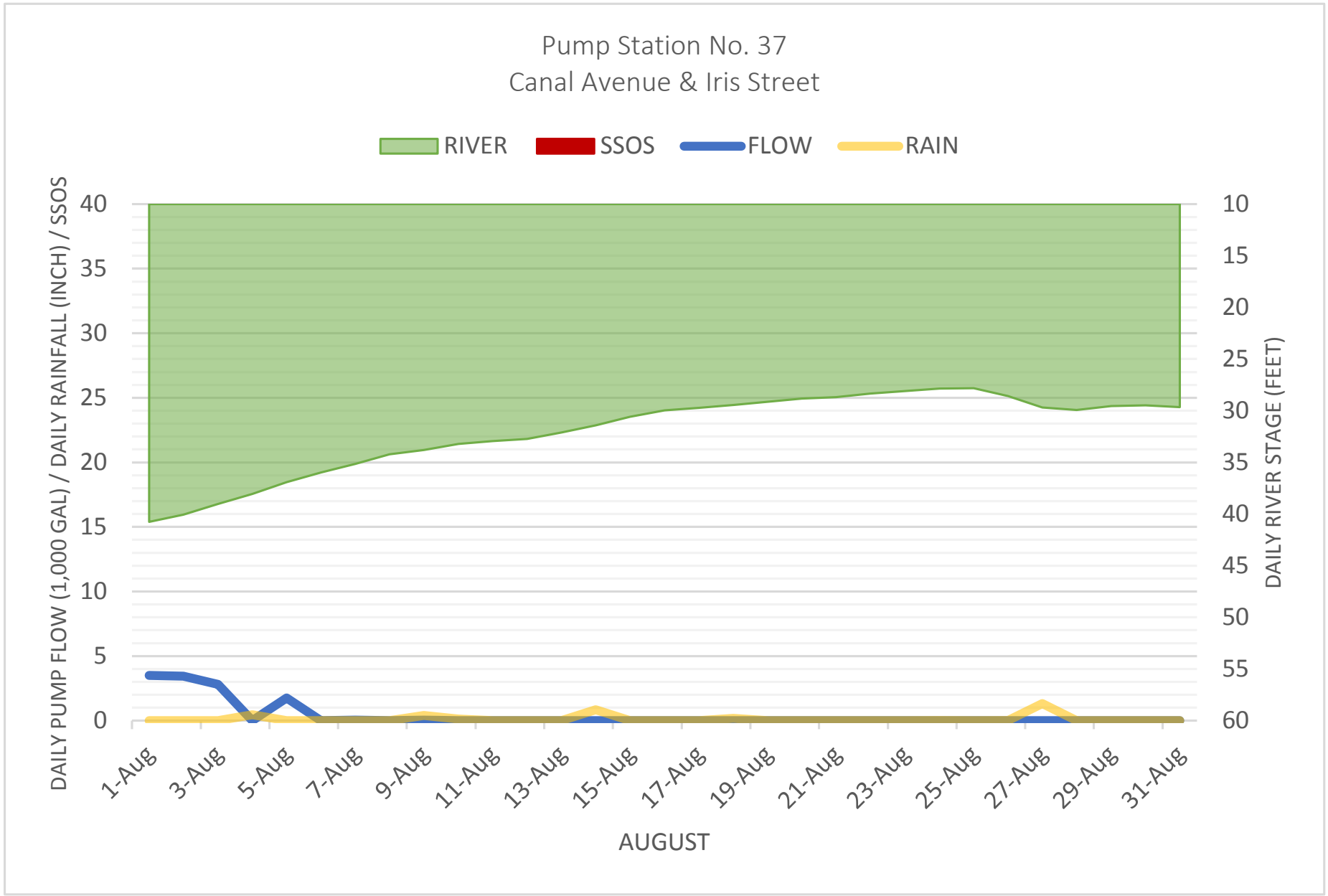
19-Jul
21-Jul
23-Jul
25-Jul
27-Jul
29-Jul
31-Jul
JULY


Pump Station No. 37
Canal Avenue & Iris Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
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1-Aug
3-Aug
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7-Aug
9-Aug
11-Aug
13-Aug
15-Aug
17-Aug
19-Aug
21-Aug
23-Aug
25-Aug
27-Aug
29-Aug
31-Aug
AUGUST

APPENDIX 17

MS12-B/PS35 I/I WORKSHEET

MS12-B/PS35
INFLOW & INFILTRATION WORKSHEET

Infiltration

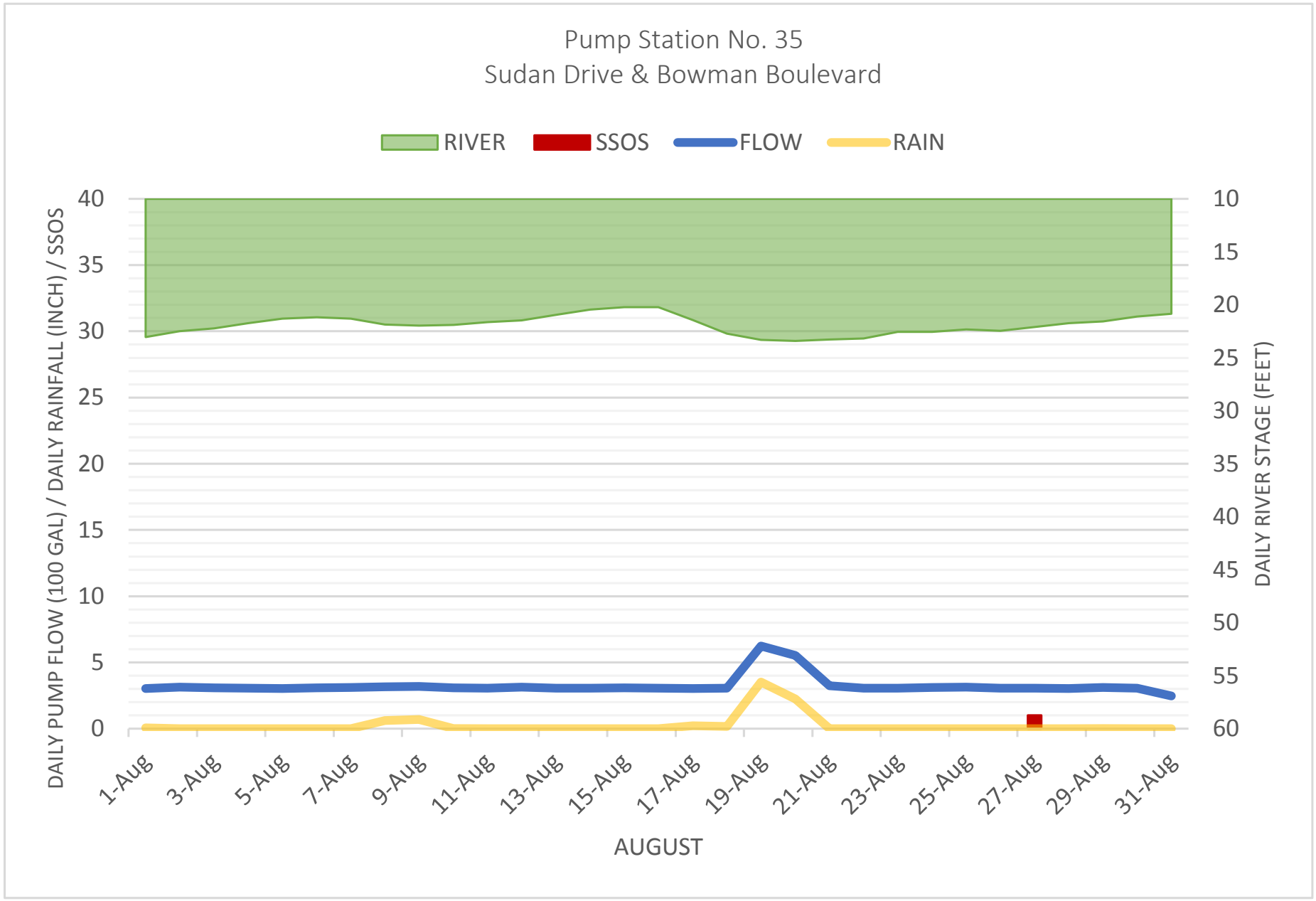
	feet	miles	diameter	inch-miles	
8" Gravity	7476	1.42	8	11.32727	
laterals	7800	1.48	4	5.909091	
				17.23636	**total inch-miles in system**
		maximum average infiltration	inch-miles		
		19,571.4286	17.24	**1135.473**	**total gpd/idm**

Inflow

	feet	miles	diameter	inch-miles	
8" Gravity	7476	1.42	8.00	11.32727	
laterals	7800	1.48	4.00	5.909091	
	15276			**17.23636**	**total inch-miles in system**
		maximum average inflow	inch-miles		
		88,642.8571	17.24	**5142.782**	**total gpd/idm**

APPENDIX 18

MS12-B/PS35 GRAPHS


Pump Station No. 35
Sudan Drive & Bowman Boulevard
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
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55
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1-Aug
3-Aug
5-Aug
7-Aug
9-Aug
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17-Aug
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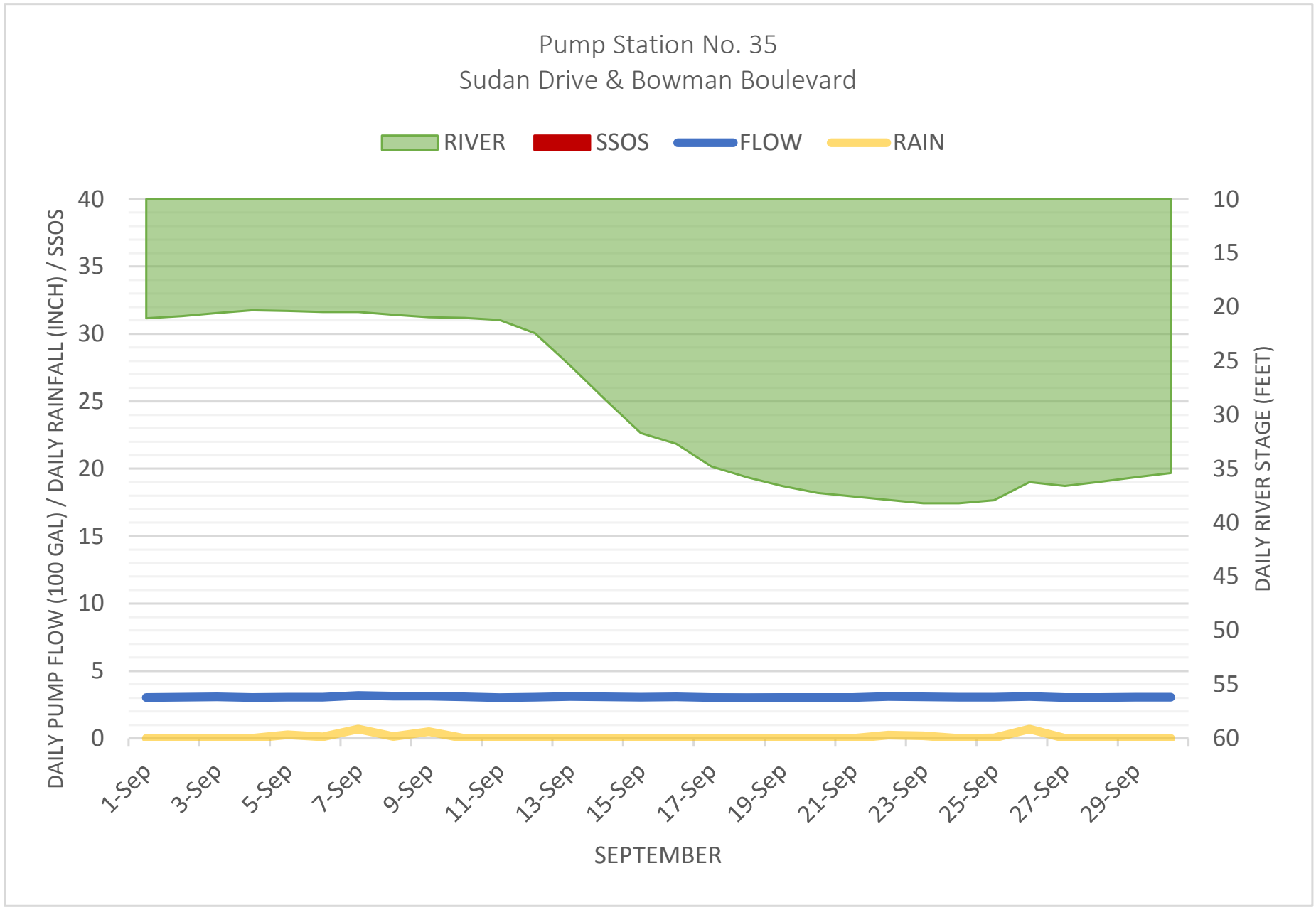
23-Aug
25-Aug
27-Aug
29-Aug
31-Aug
AUGUST


Pump Station No. 35
Sudan Drive & Bowman Boulevard
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
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15
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25
30
35
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45
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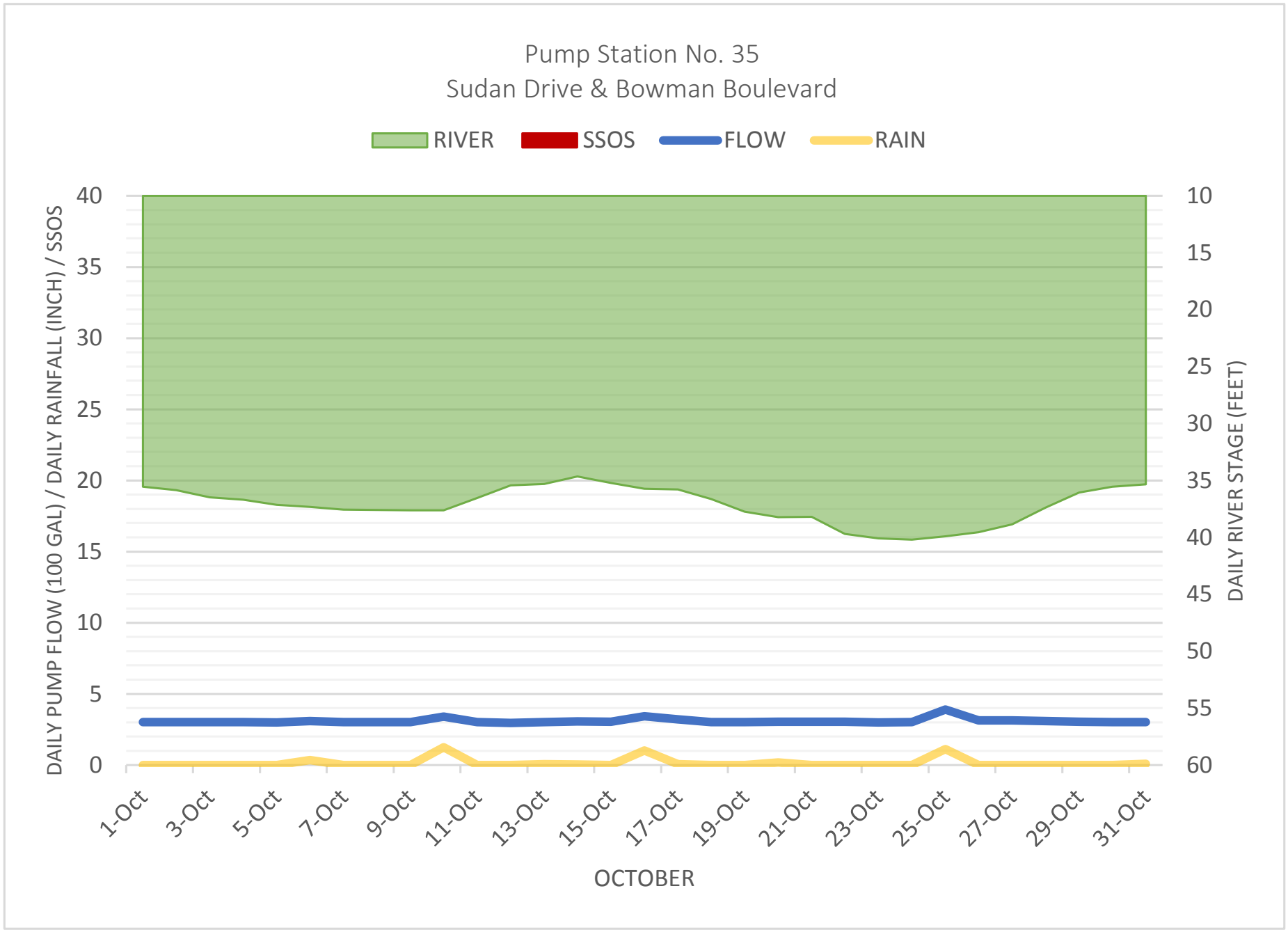
55
60
1-Sep
3-Sep
5-Sep
7-Sep
9-Sep
11-Sep
13-Sep
15-Sep
17-Sep
19-Sep
21-Sep
23-Sep
25-Sep
27-Sep
29-Sep
SEPTEMBER


Pump Station No. 35
Sudan Drive & Bowman Boulevard
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Oct
3-Oct
5-Oct
7-Oct
9-Oct
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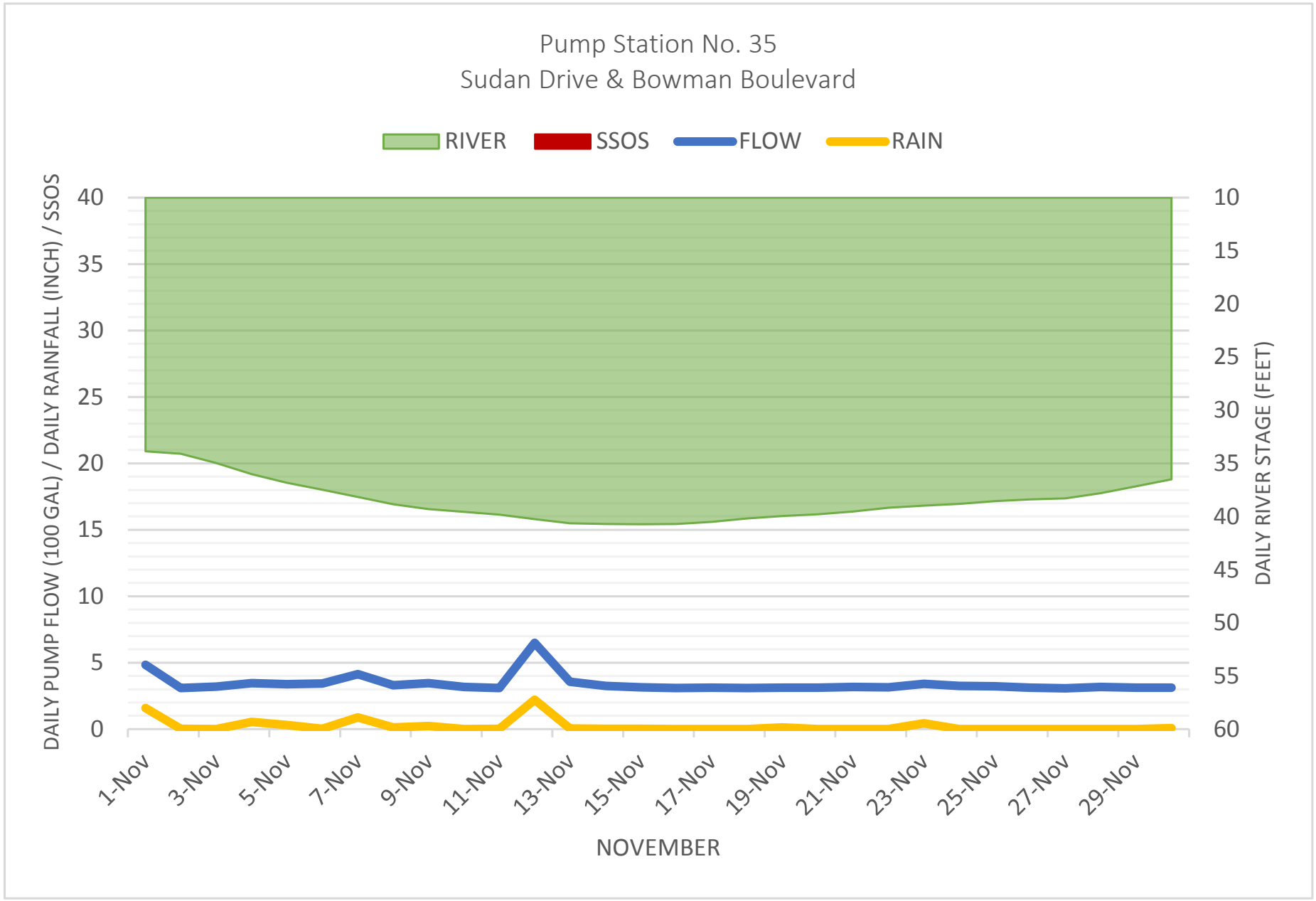
29-Oct
31-Oct
OCTOBER


Pump Station No. 35
Sudan Drive & Bowman Boulevard
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
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1-Nov
3-Nov
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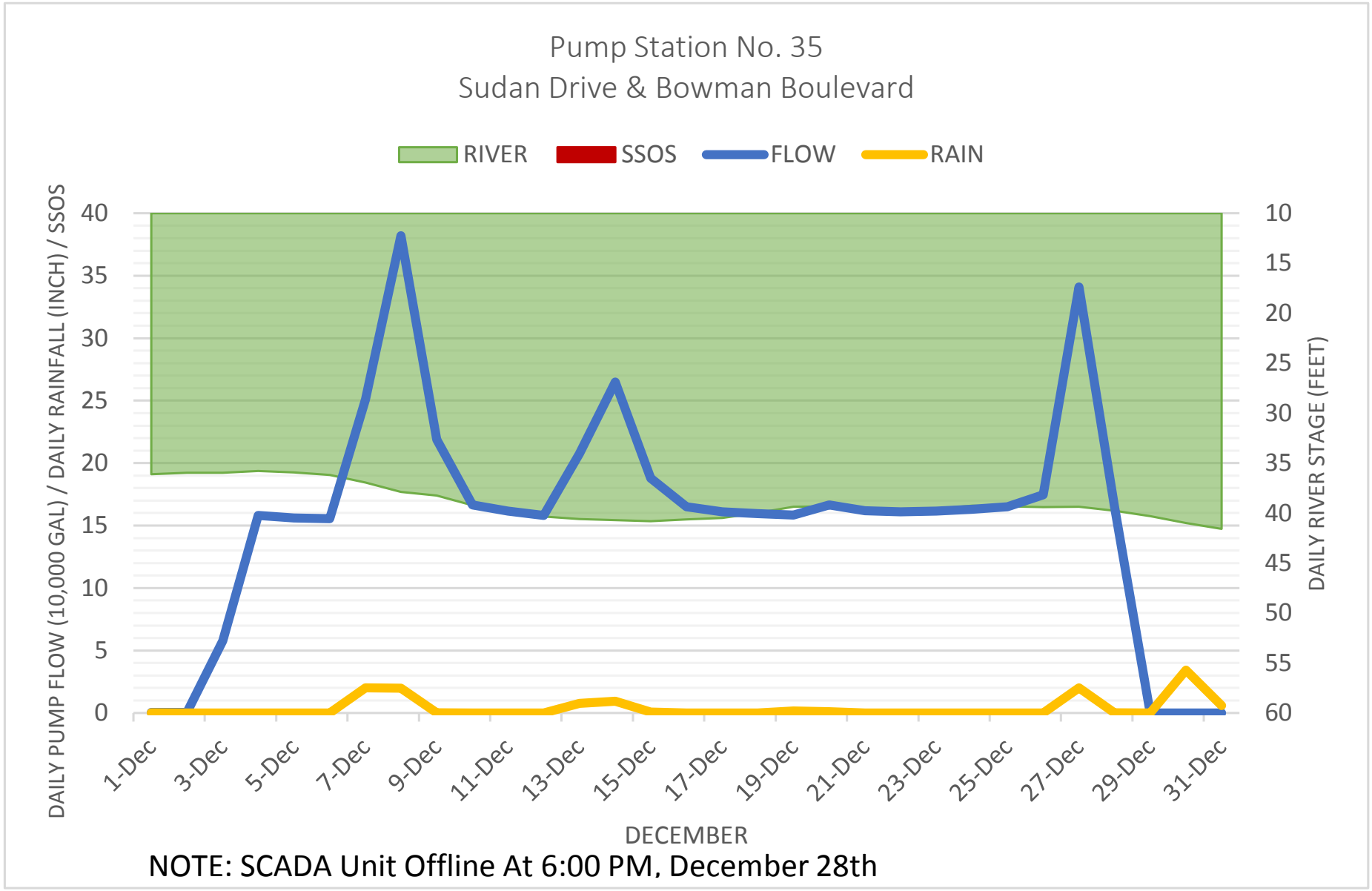
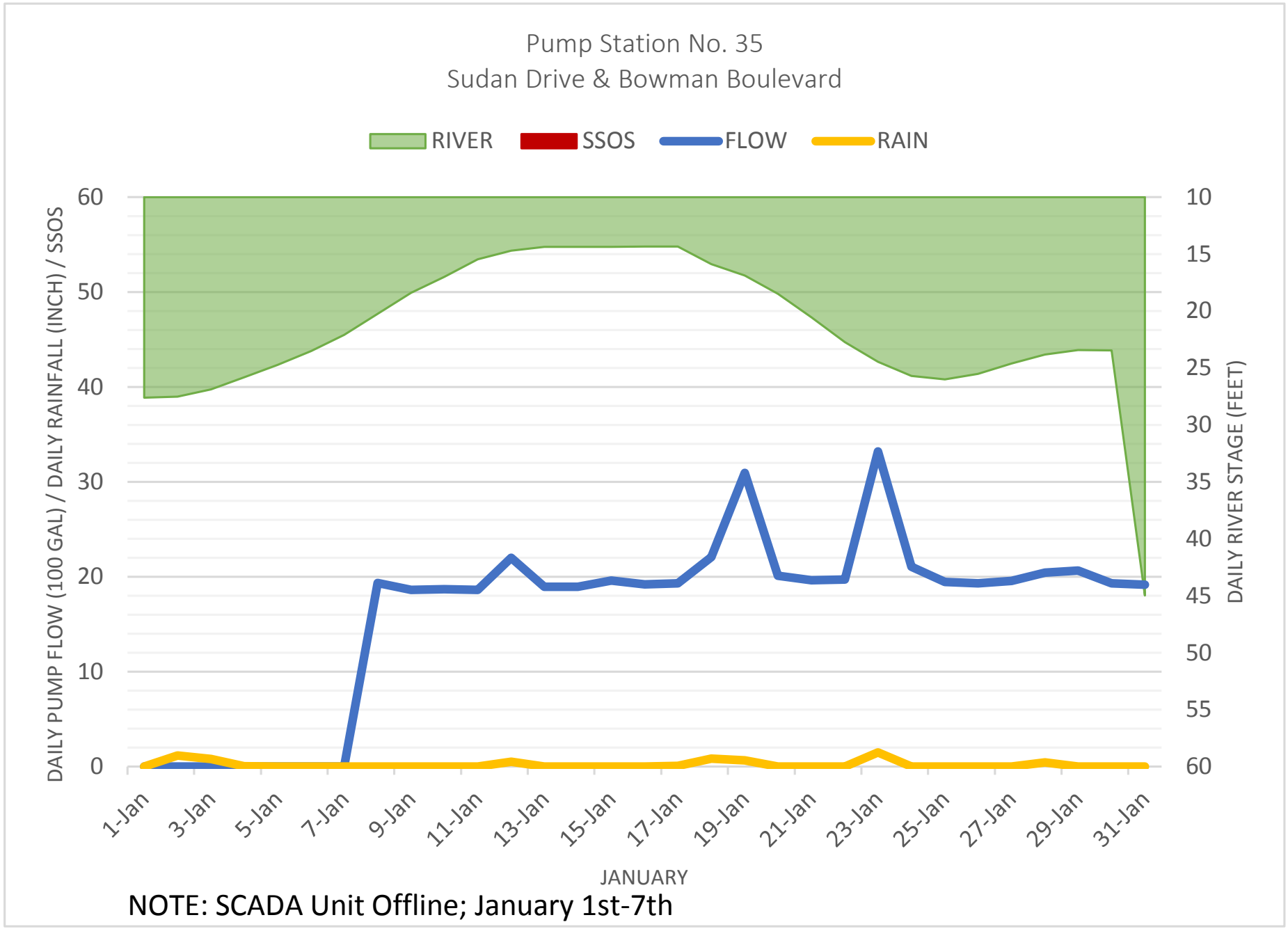
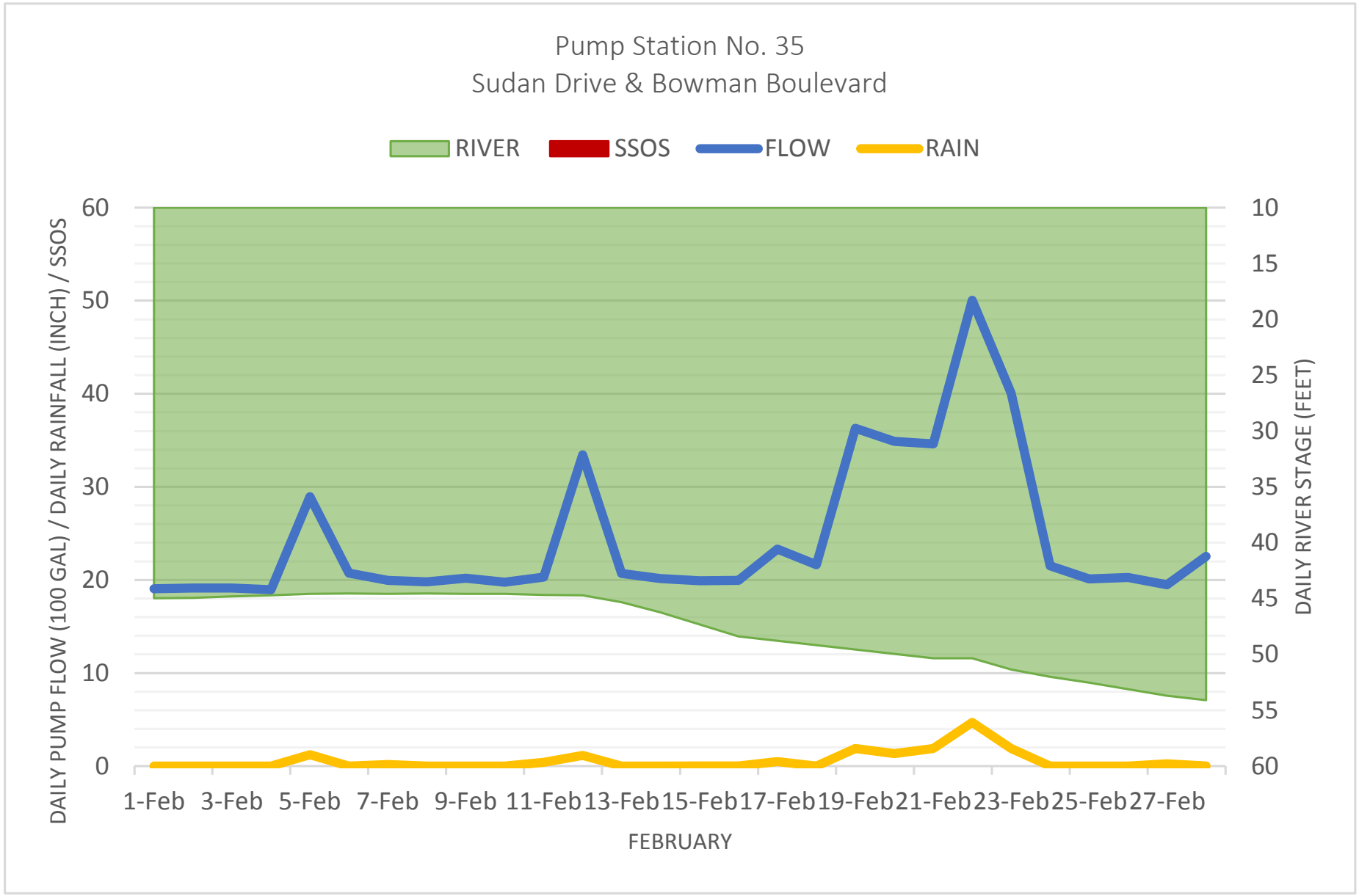
23-Nov
25-Nov
27-Nov
29-Nov
NOVEMBER



NOTE: SCADA Unit Offline At 6:00 PM, December 28th



NOTE: SCADA Unit Offline; January 1st-7th


Pump Station No. 35
Sudan Drive & Bowman Boulevard
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
60
50
40
30
20
10
0
10
15
20
25
30
35
40
45
50
55
60
1-Feb
3-Feb
5-Feb
7-Feb
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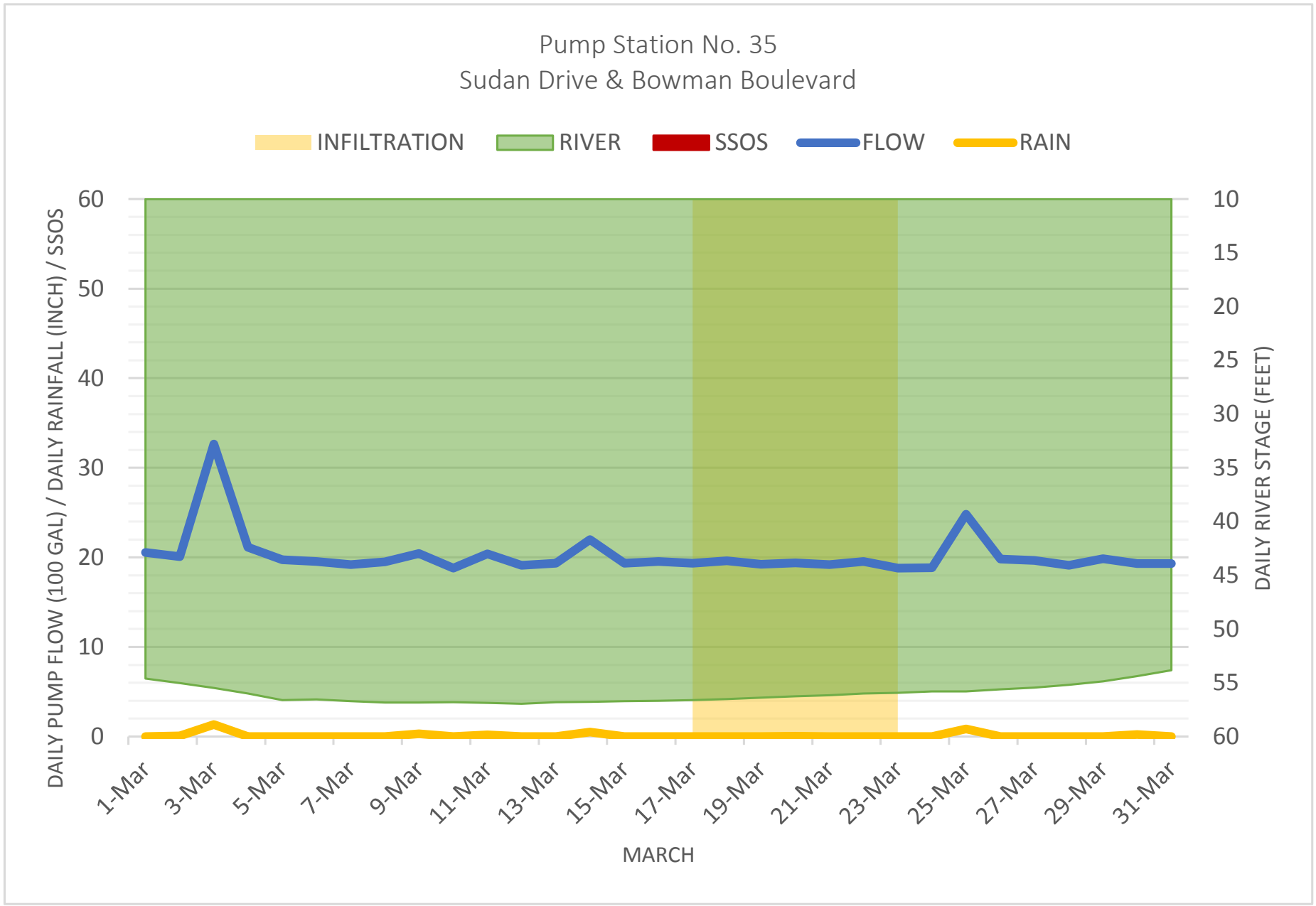
17-Feb
19-Feb
21-Feb
23-Feb
25-Feb
27-Feb
FEBRUARY


Pump Station No. 35
Sudan Drive & Bowman Boulevard
INFILTRATION
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
60
50
40
30
20
10
0
10
15
20
25
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35
40
45
50
55
60
1-Mar
3-Mar
5-Mar
7-Mar
9-Mar
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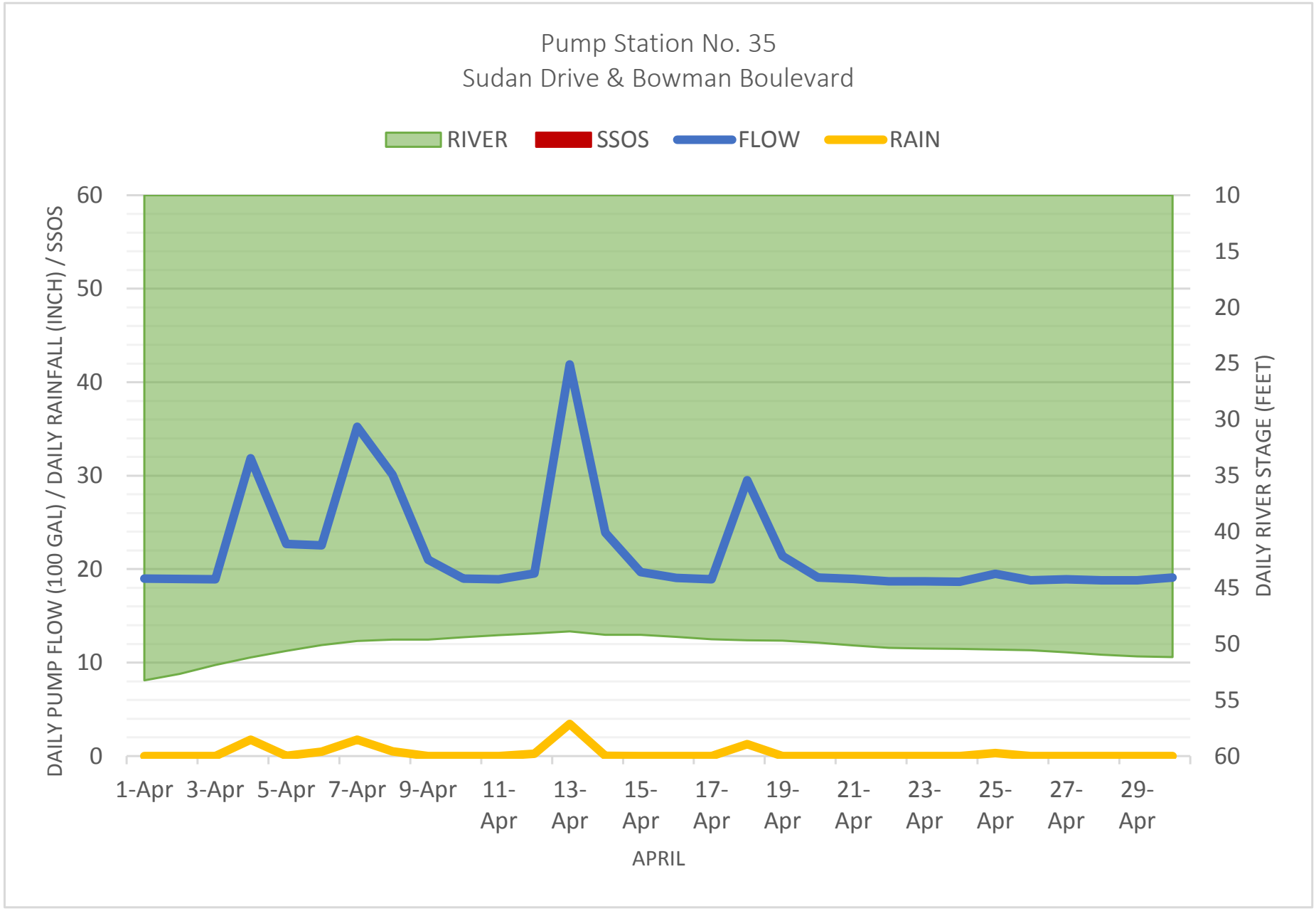
25-Mar
27-Mar
29-Mar
31-Mar
MARCH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Sudan Drive & Bowman Boulevard
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
60
50
40
30
20
10
0
10
15
20
25
30
35
40
45
50
55
60
1-Apr
3-Apr
5-Apr
7-Apr
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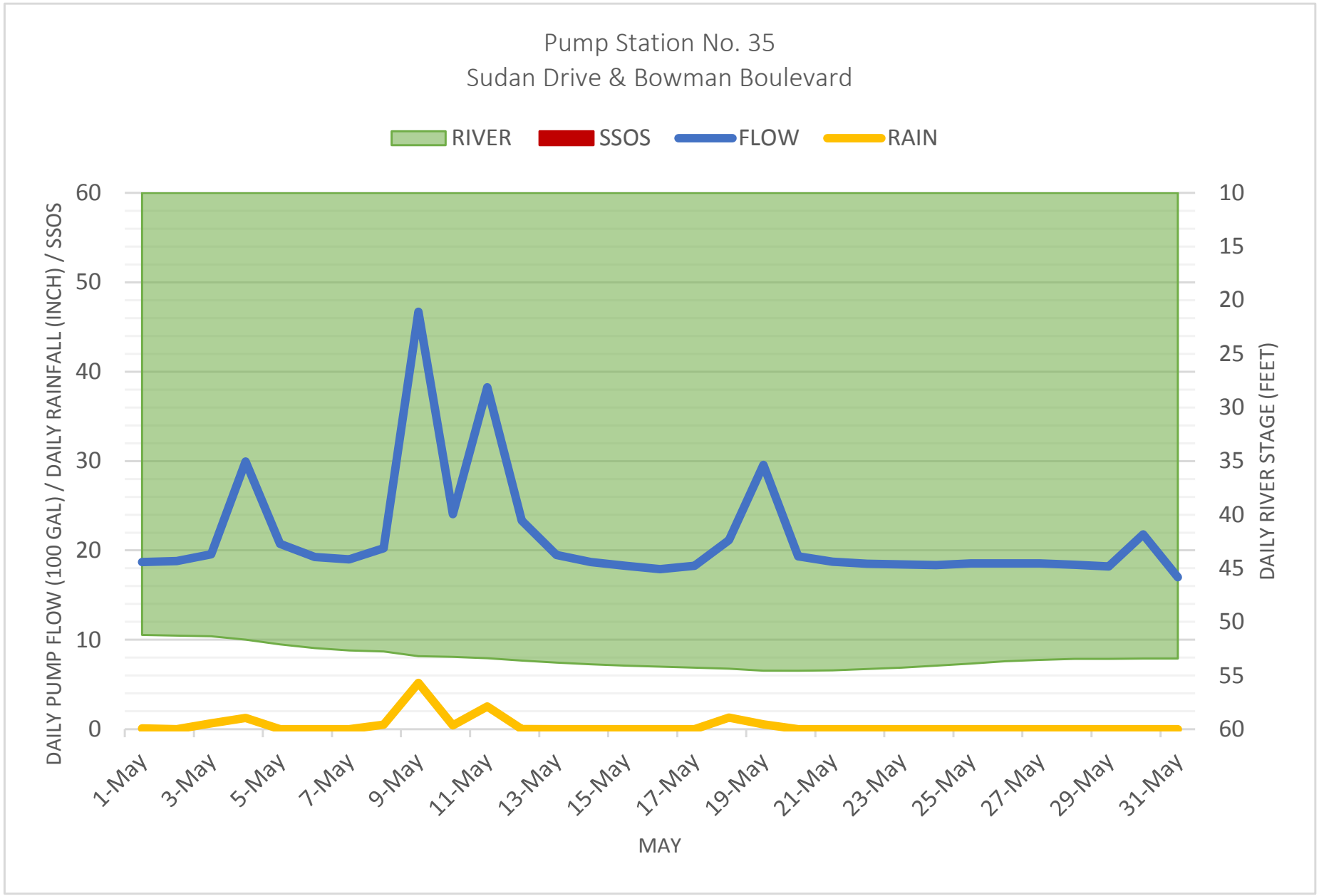
23-Apr
25-Apr
27-Apr
29-Apr
APRIL


Pump Station No. 35
Sudan Drive & Bowman Boulevard
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
60
50
40
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20
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25
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35
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45
50
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60
1-May
3-May
5-May
7-May
9-May
11-May
13-May
15-May
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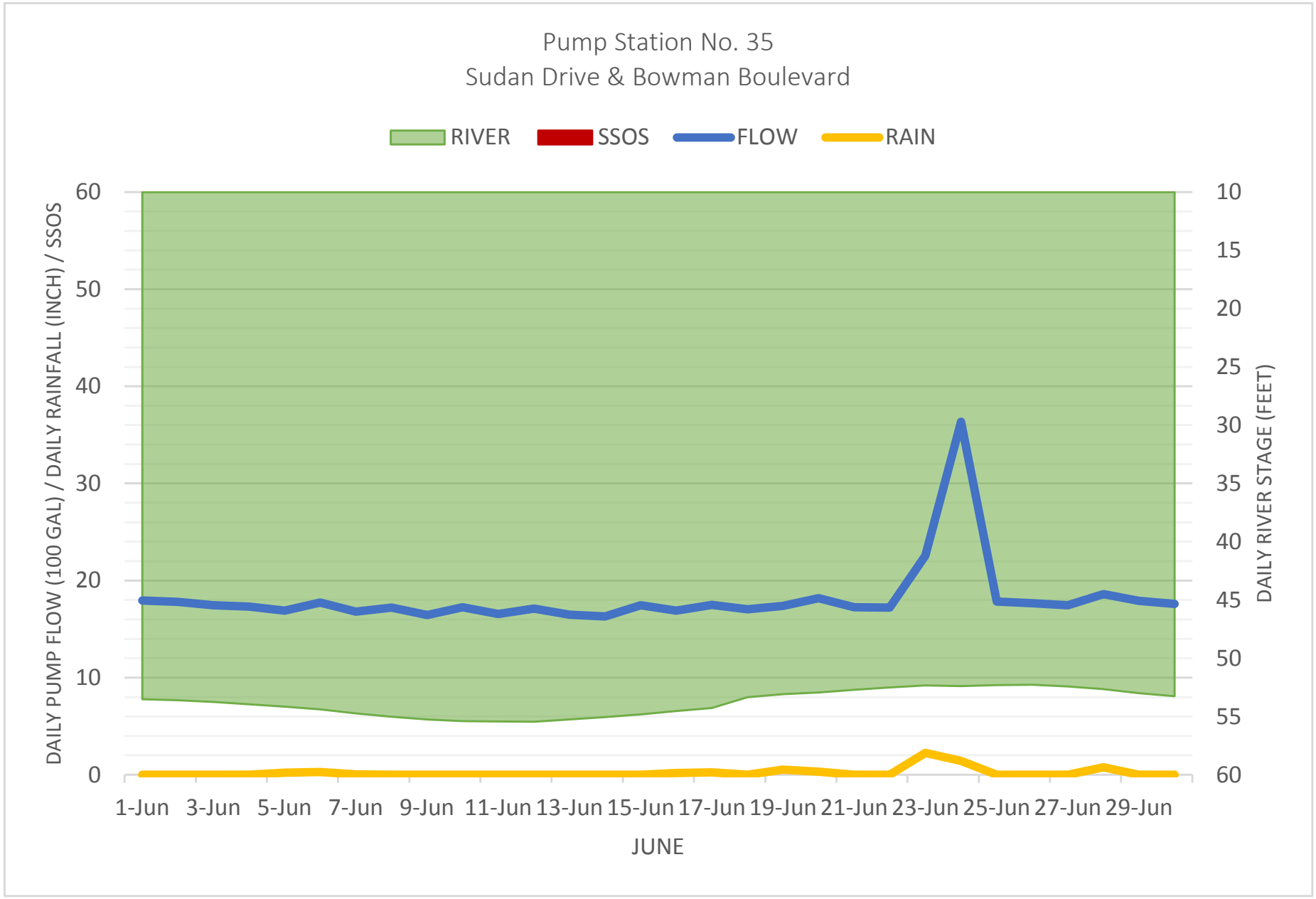
23-May
25-May
27-May
29-May
31-May
MAY


Pump Station No. 35
Sudan Drive & Bowman Boulevard
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
60
50
40
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20
10
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25
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1-Jun
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5-Jun
7-Jun
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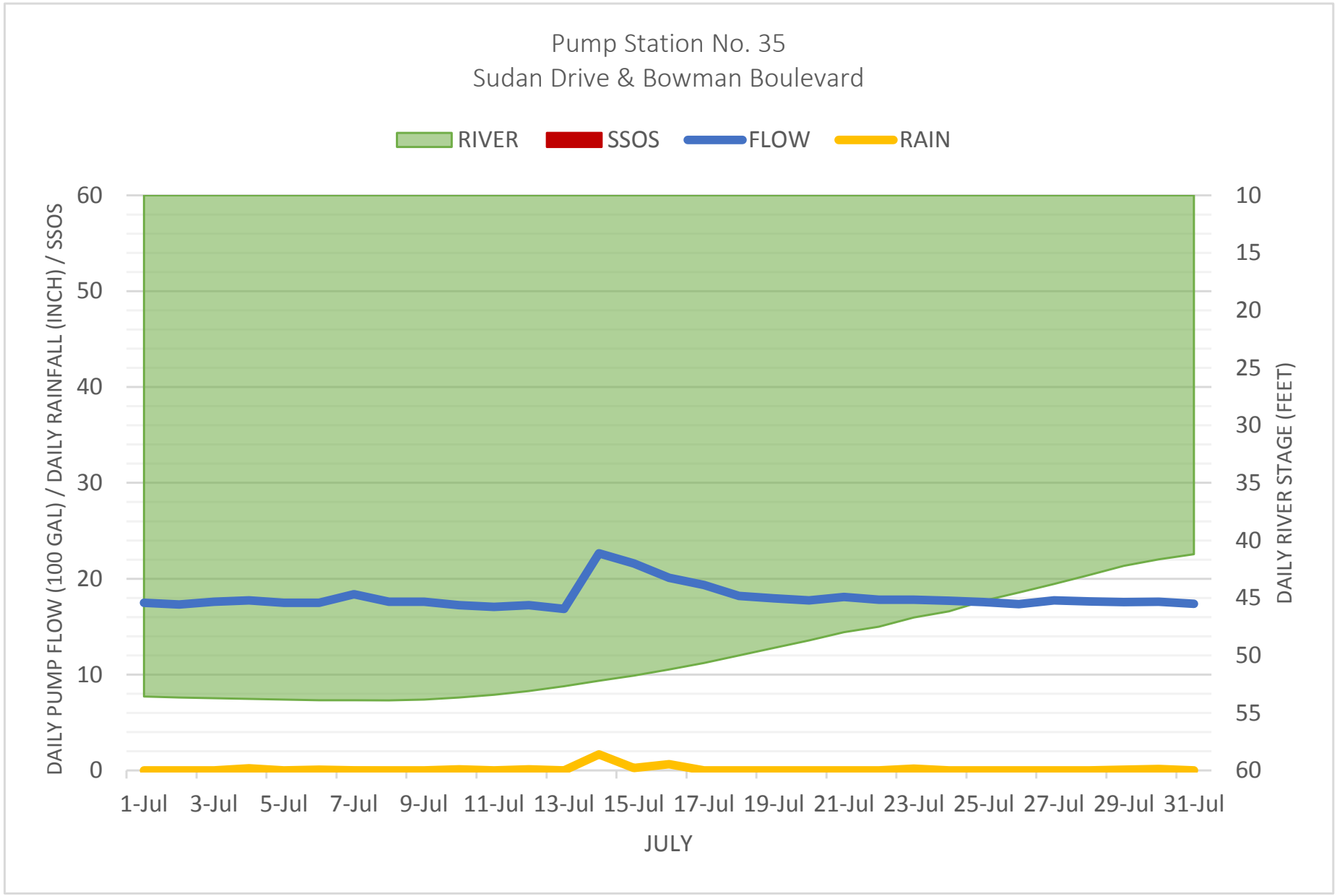
27-Jun
29-Jun
JUNE


Pump Station No. 35
Sudan Drive & Bowman Boulevard
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
60
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1-Jul
3-Jul
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9-Jul
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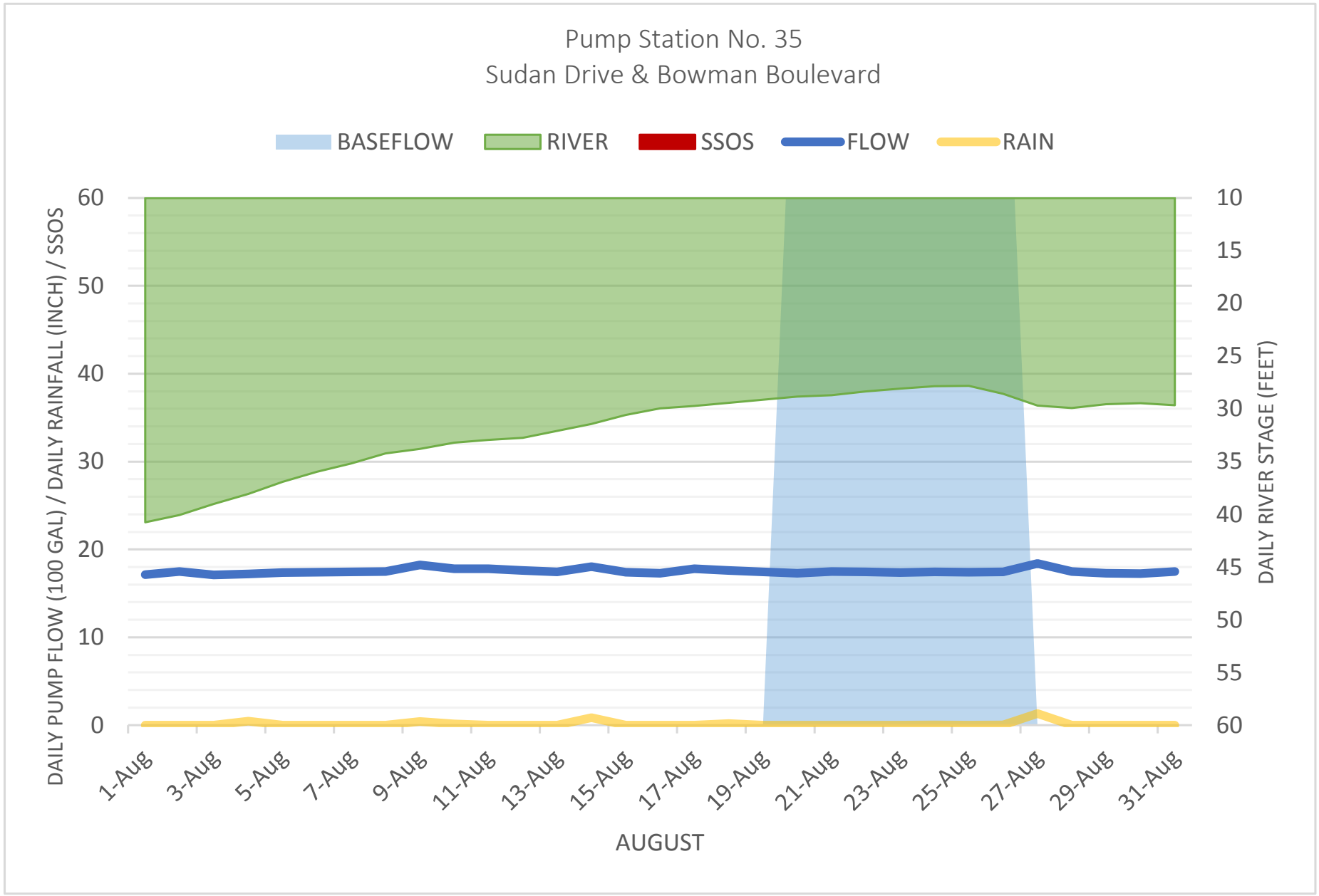
29-Jul
31-Jul
JULY


Pump Station No. 35
Sudan Drive & Bowman Boulevard
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
60
50
40
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20
10
0
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15
20
25
30
35
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45
50
55
60
1-Aug
3-Aug
5-Aug
7-Aug
9-Aug
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25-Aug
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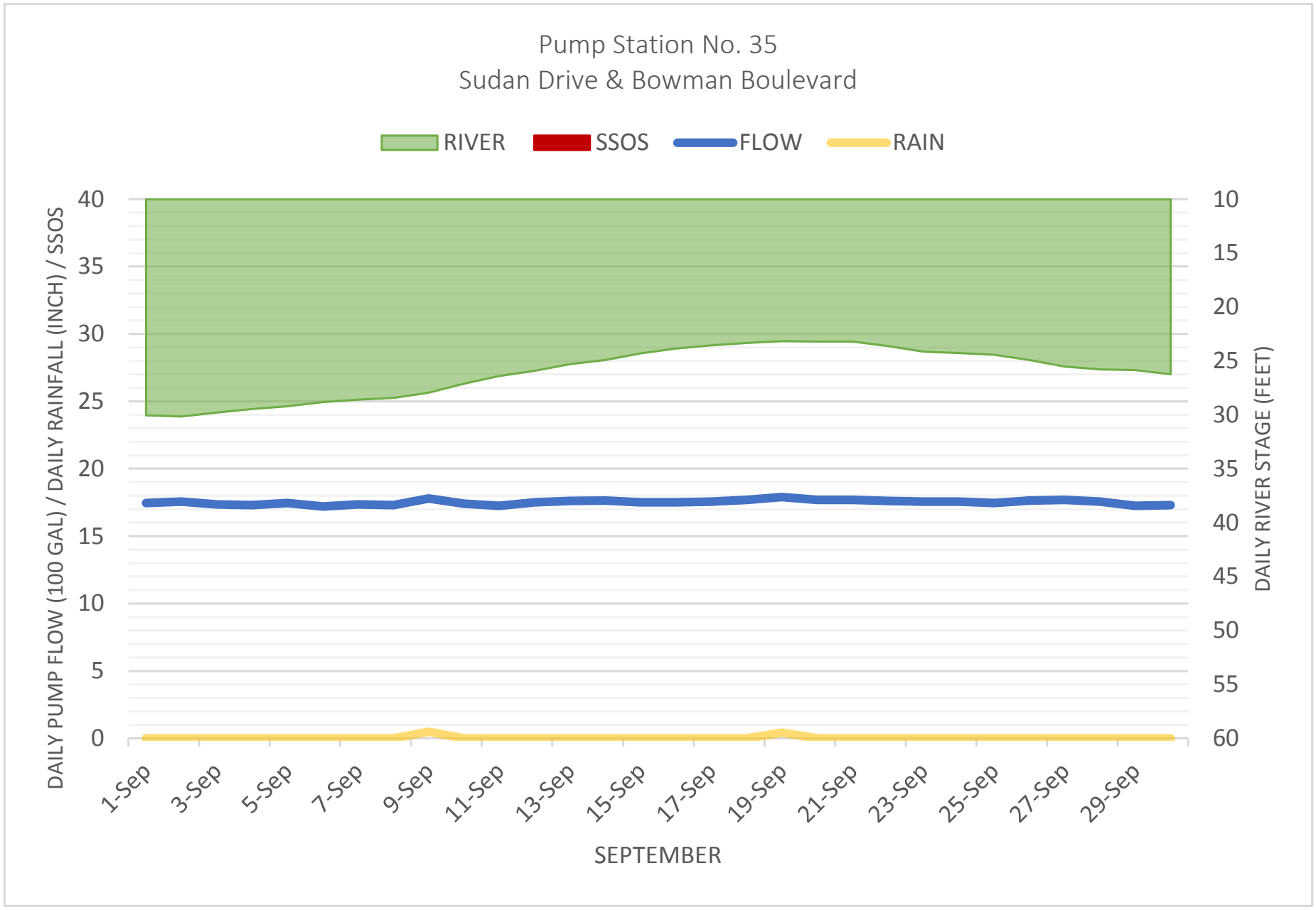
29-Aug
31-Aug
AUGUST


Pump Station No. 35
Sudan Drive & Bowman Boulevard
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
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0
10
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25
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35
40
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55
60
1-Sep
3-Sep
5-Sep
7-Sep
9-Sep
11-Sep
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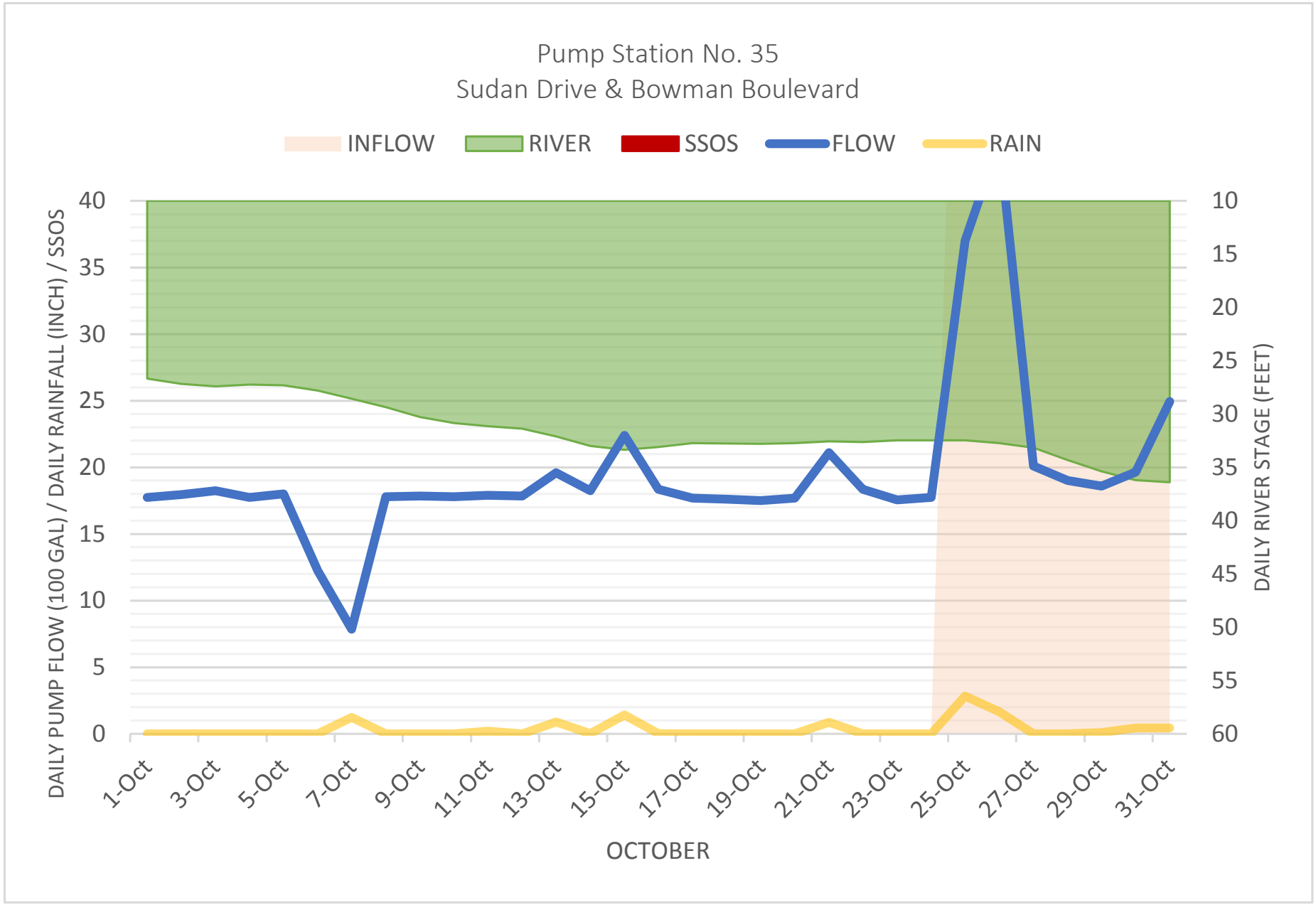
21-Sep
23-Sep
25-Sep
27-Sep
29-Sep
SEPTEMBER


Pump Station No. 35
Sudan Drive & Bowman Boulevard
INFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
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55
60
1-Oct
3-Oct
5-Oct
7-Oct
9-Oct
11-Oct
13-Oct
15-Oct
17-Oct
19-Oct
21-Oct
23-Oct
25-Oct
27-Oct
29-Oct
31-Oct
OCTOBER

APPENDIX 19

MS14/PS10 I/I WORKSHEET

MS14/PS10
INFLOW & INFILTRATION WORKSHEET

Infiltration

	feet	miles	diameter	inch-miles	
21" GRAVITY	125	0.02	21.00	0.497159	
18" GRAVITY	2431	0.46	18.00	8.2875	
15" GRAVITY	2634	0.50	15.00	7.482955	
12" GRAVITY	1323	0.25	12.00	3.006818	
10" GRAVITY	373	0.07	10.00	0.706439	
8" GRAVITY	48337	9.15	8.00	73.23788	
6" GRAVITY	1445	0.27	6	1.642045	
4" LATERALS	42000	7.95	4	31.81818	
TOTAL PIPE	98668	18.69			
				126.679	**total inch-miles in system**

	maximum average infiltration	inch-miles		
	434,785.7143	126.68	**3432.185**	**total gpd/idm**

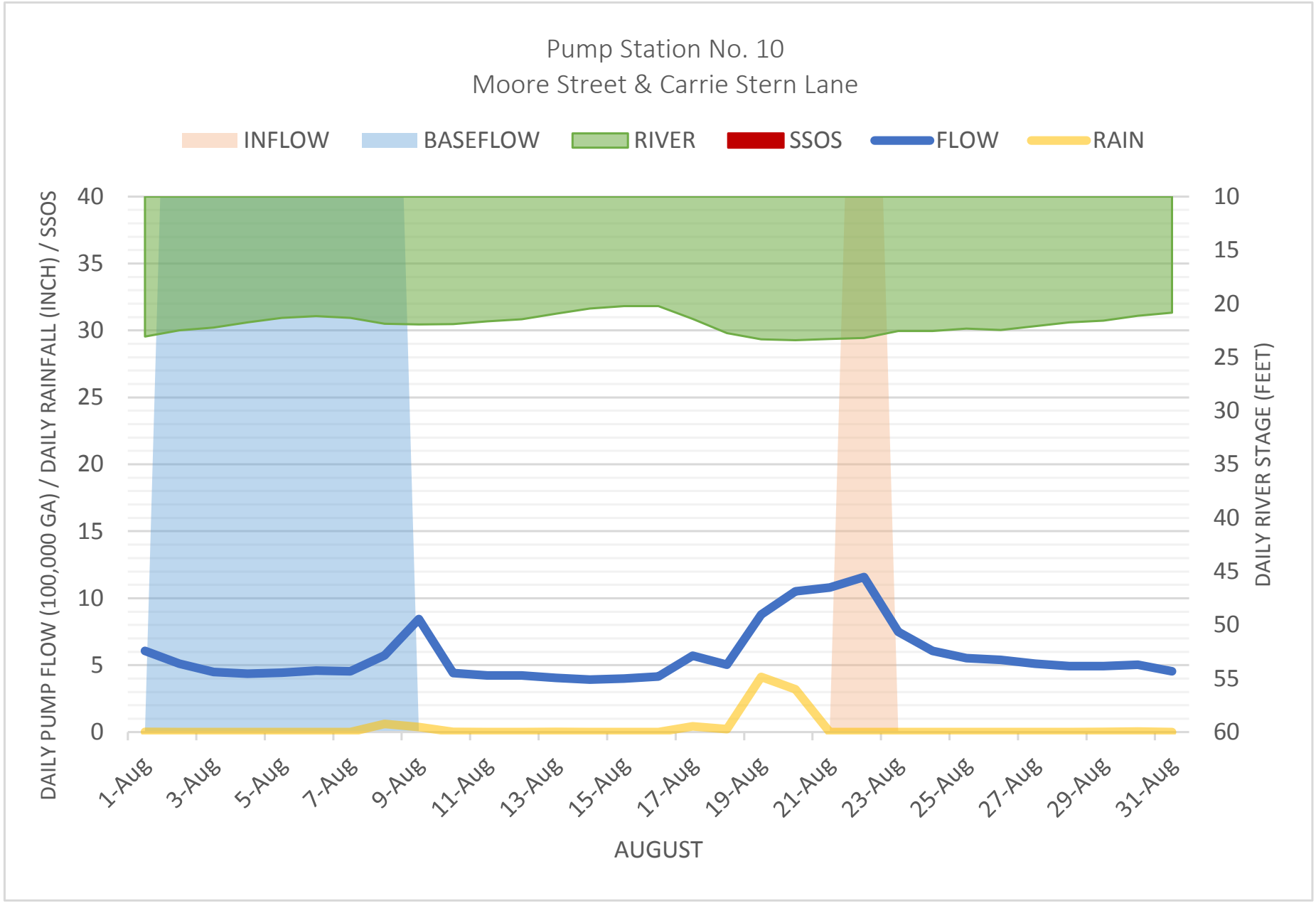
Inflow

	feet	miles	diameter	inch-miles	
21" GRAVITY	125	0.02	21.00	0.497159	
18" GRAVITY	2431	0.46	18.00	8.2875	
15" GRAVITY	2634	0.50	15.00	7.482955	
12" GRAVITY	1323	0.25	12.00	3.006818	
10" GRAVITY	373	0.07	10.00	0.706439	
8" GRAVITY	48337	9.15	8.00	73.23788	
6" GRAVITY	1445	0.27	6.00	1.642045	
4" LATERALS	42000	7.95	4.00	31.81818	
TOTAL PIPE	98668				
				126.679	**total inch-miles in system**

	maximum average inflow	inch-miles		
	445,214.2857	126.68	**3514.508**	**total gpd/idm**

APPENDIX 20

MS14/PS10 GRAPHS


Pump Station No. 10
Moore Street & Carrie Stern Lane
INFLOW
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GA) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Aug
3-Aug
5-Aug
7-Aug
9-Aug
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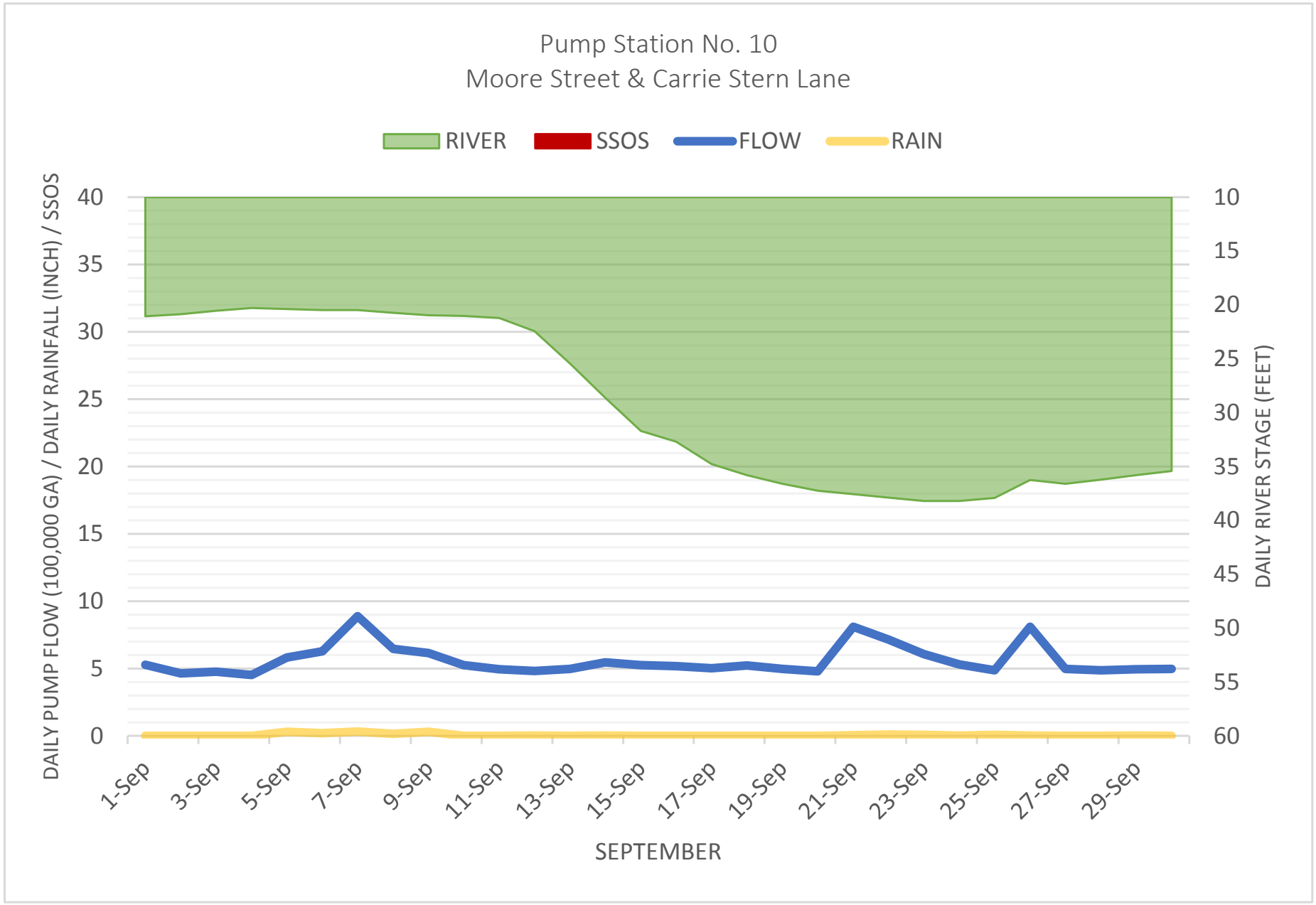
31-Aug
AUGUST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Moore Street & Carrie Stern Lane
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GA) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
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1-Sep
3-Sep
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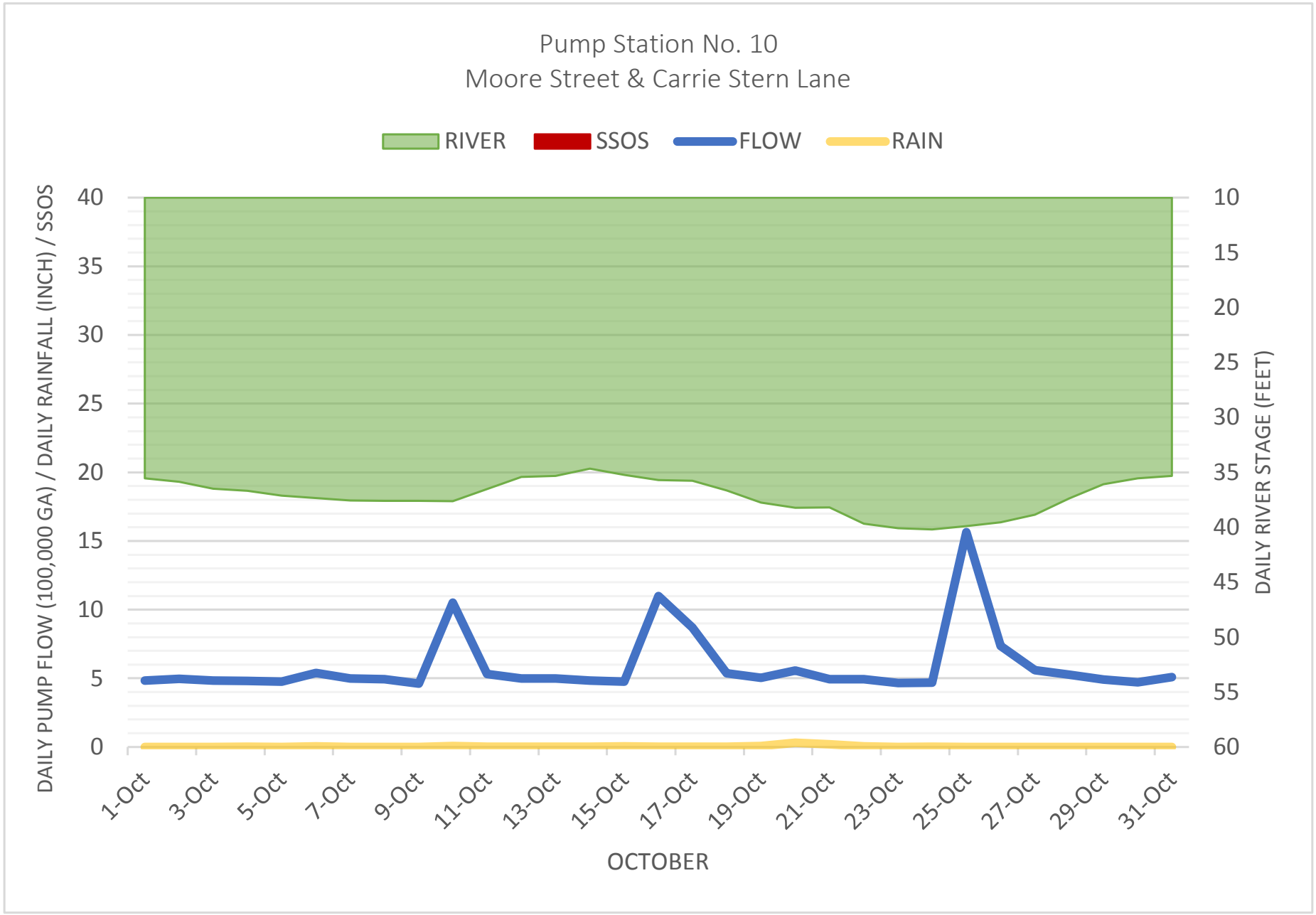
29-Sep
SEPTEMBER


Pump Station No. 10
Moore Street & Carrie Stern Lane
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GA) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
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25
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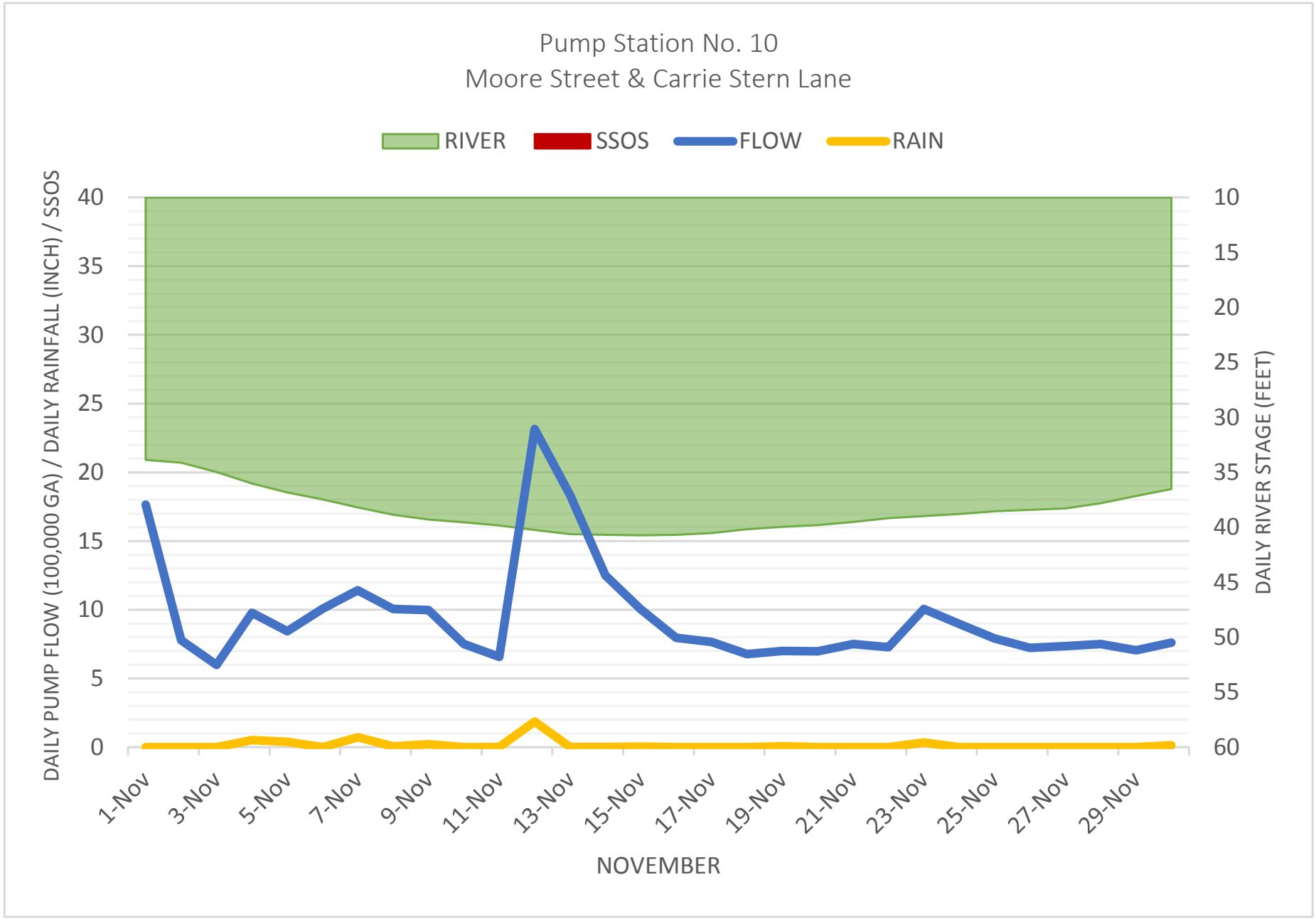
31-Oct
OCTOBER


Pump Station No. 10
Moore Street & Carrie Stern Lane
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GA) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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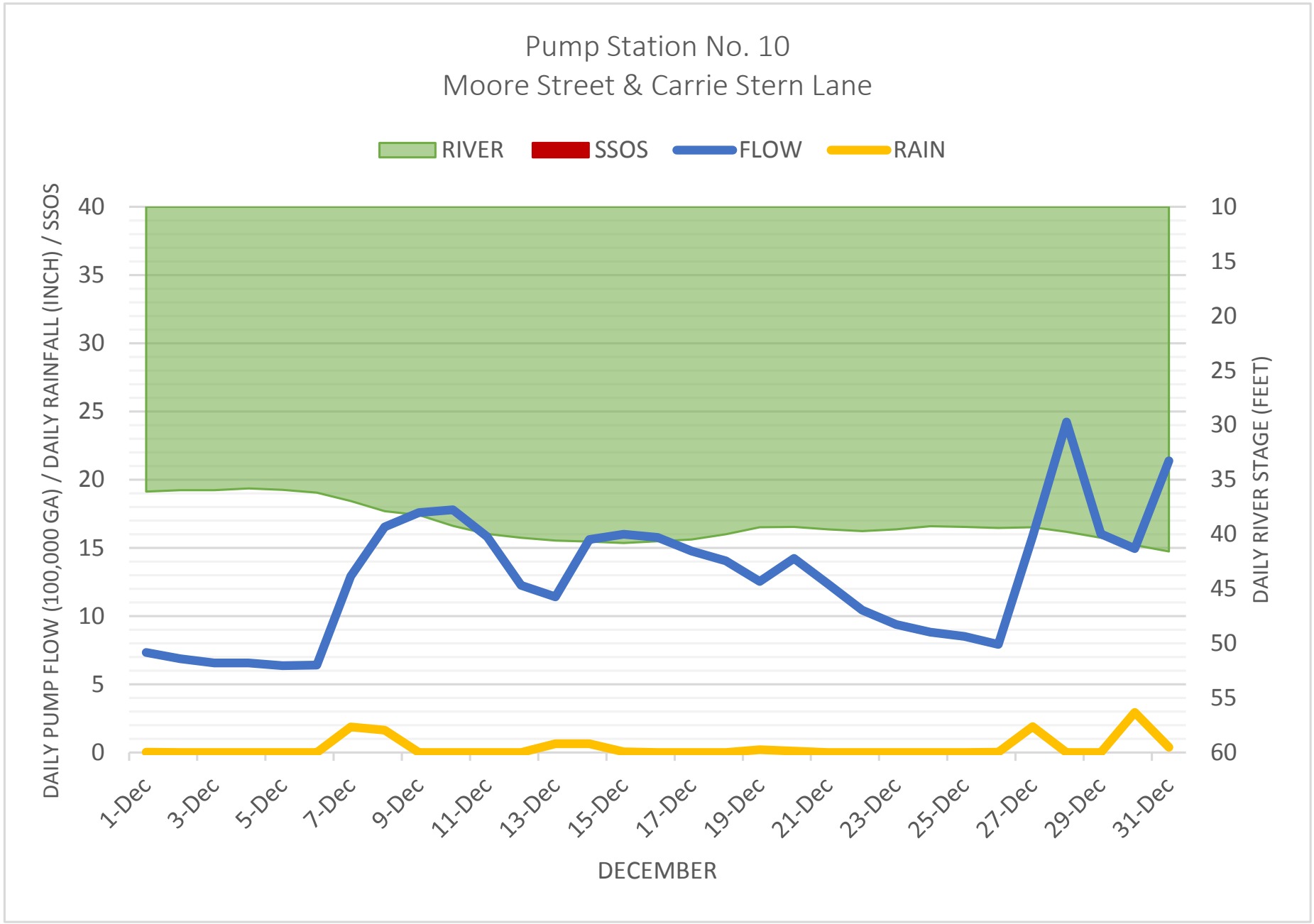
NOVEMBER


Pump Station No. 10
Moore Street & Carrie Stern Lane
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GA) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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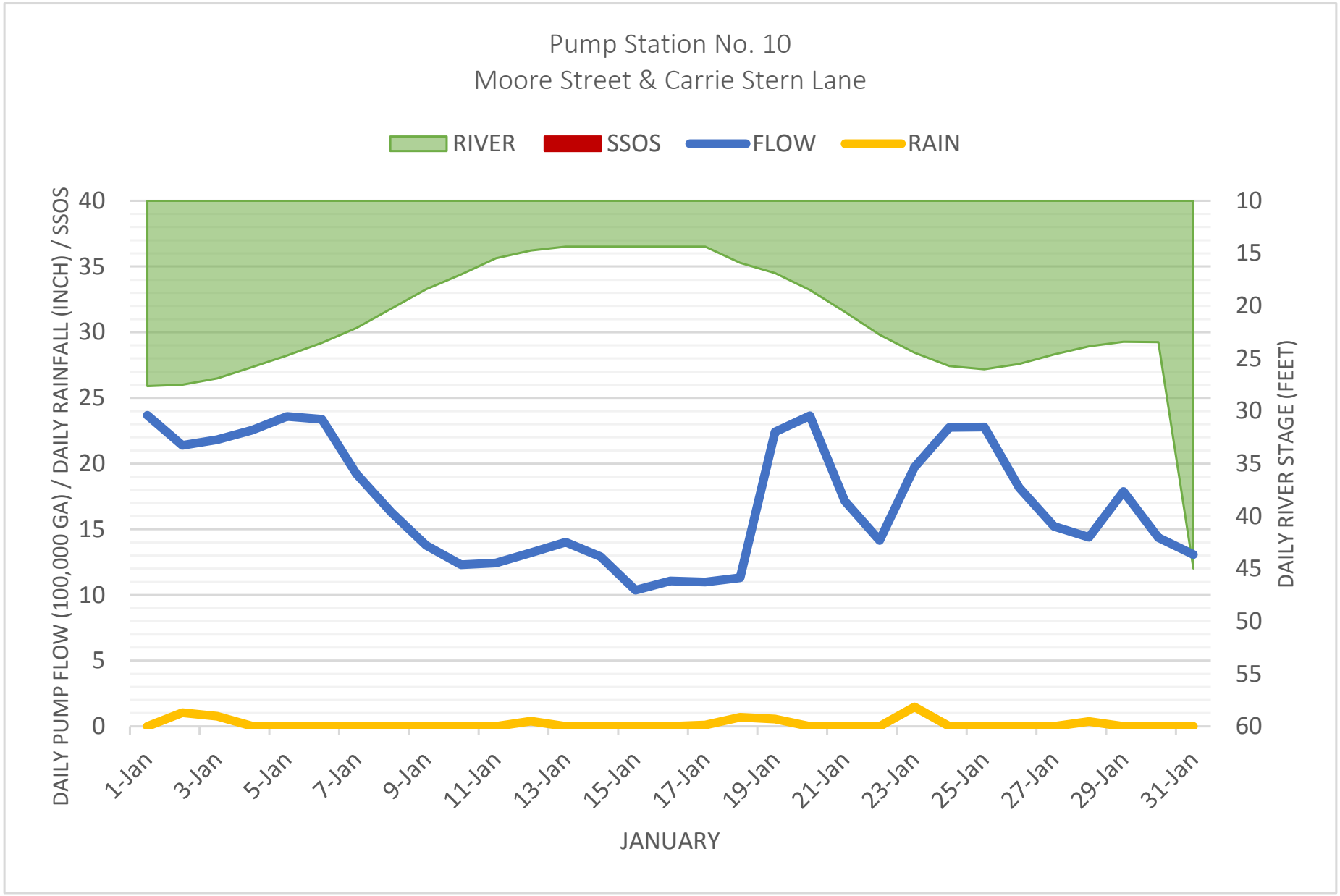
DECEMBER


Pump Station No. 10
Moore Street & Carrie Stern Lane
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GA) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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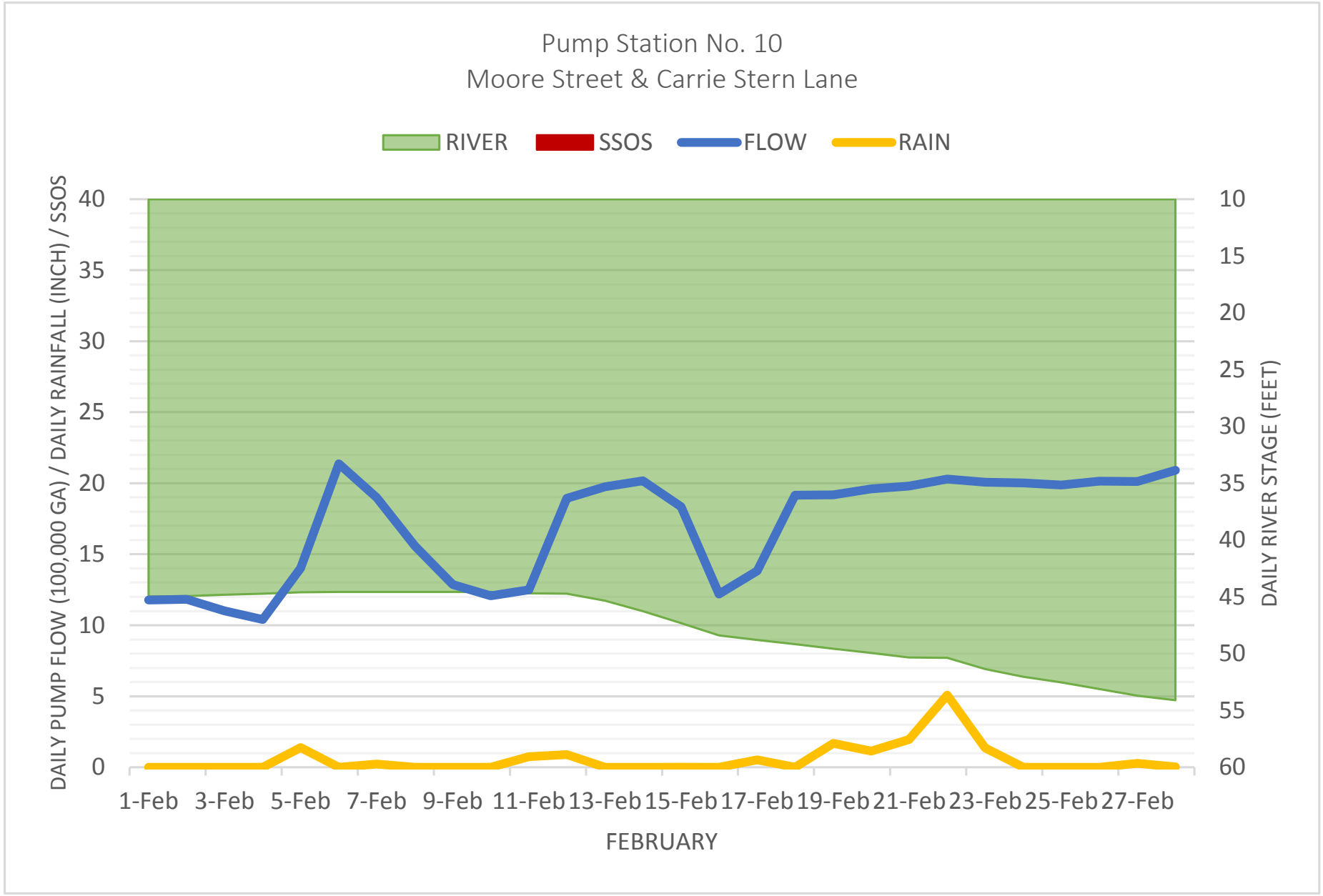
31-Jan
JANUARY


Pump Station No. 10
Moore Street & Carrie Stern Lane
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GA) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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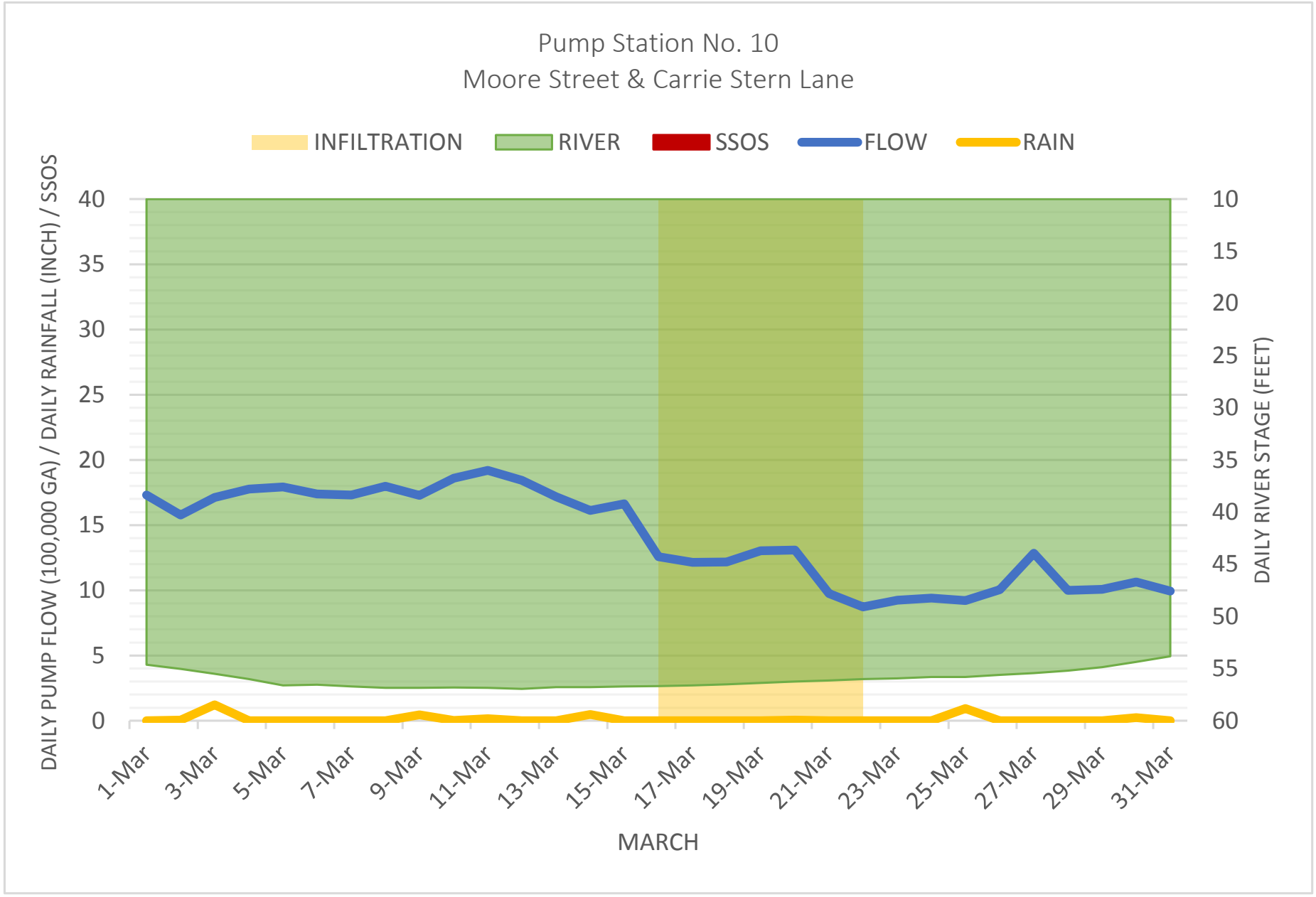
27-Feb
FEBRUARY


Pump Station No. 10
Moore Street & Carrie Stern Lane
INFILTRATION
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GA) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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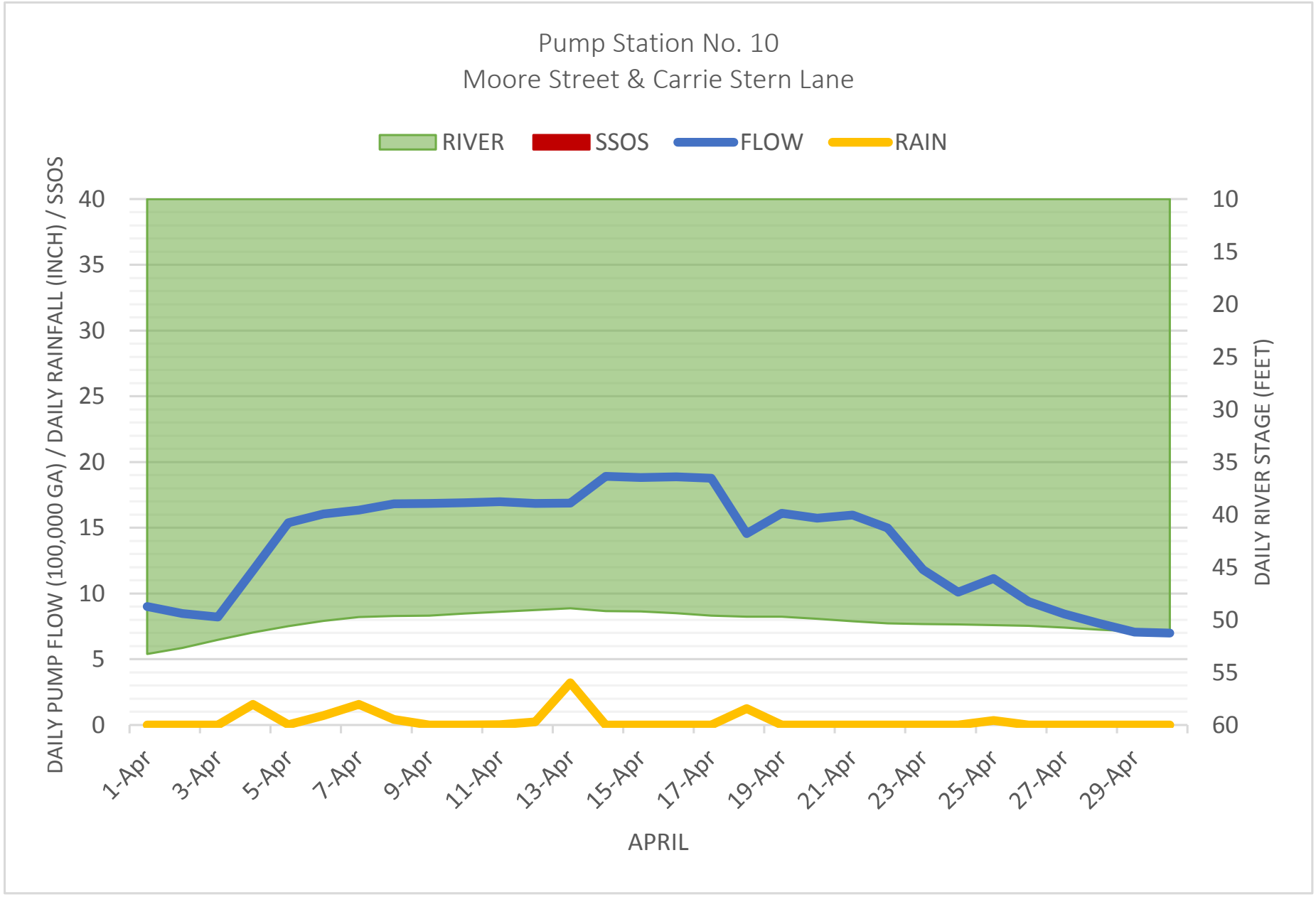
31-Mar
MARCH


Pump Station No. 10
Moore Street & Carrie Stern Lane
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GA) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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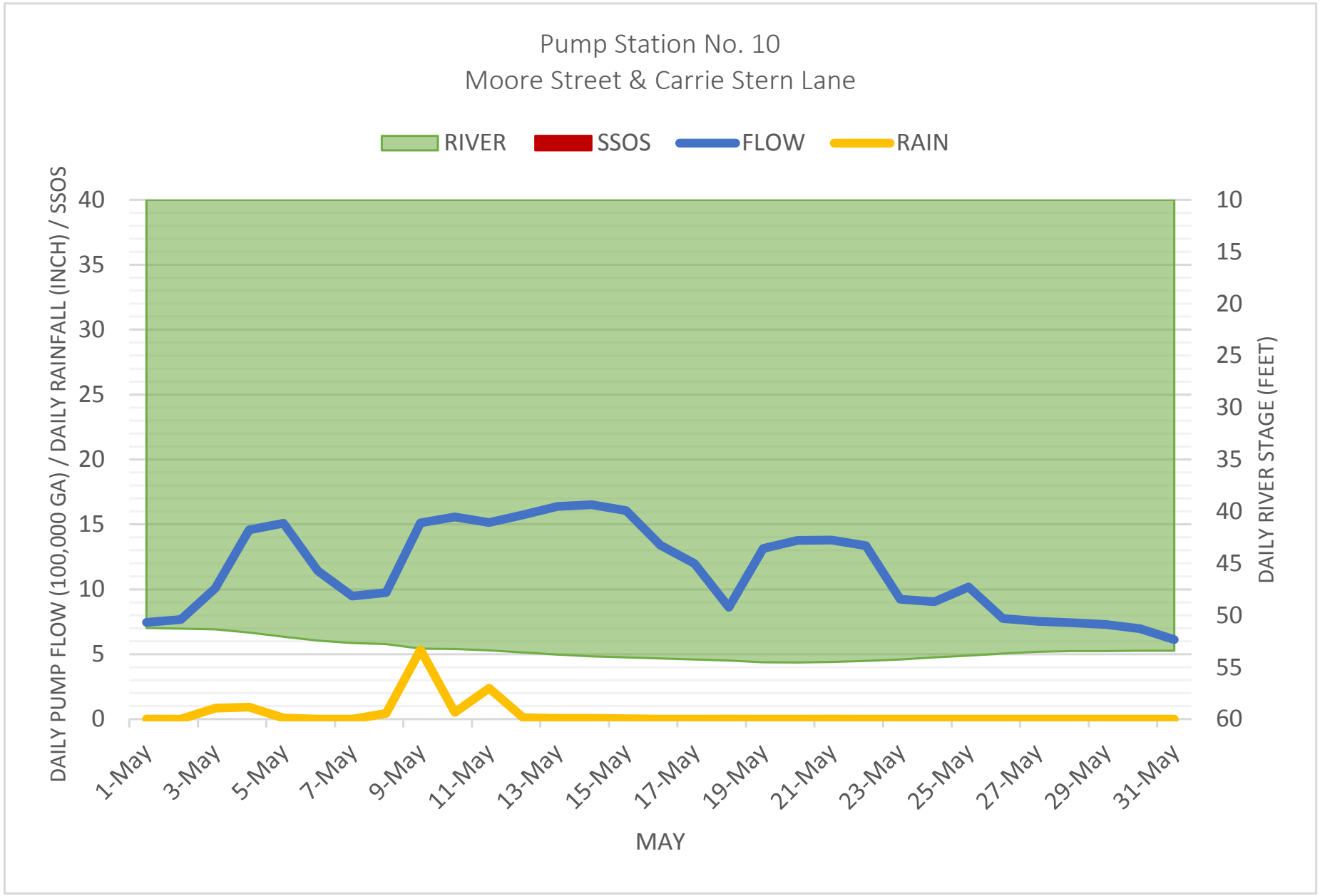
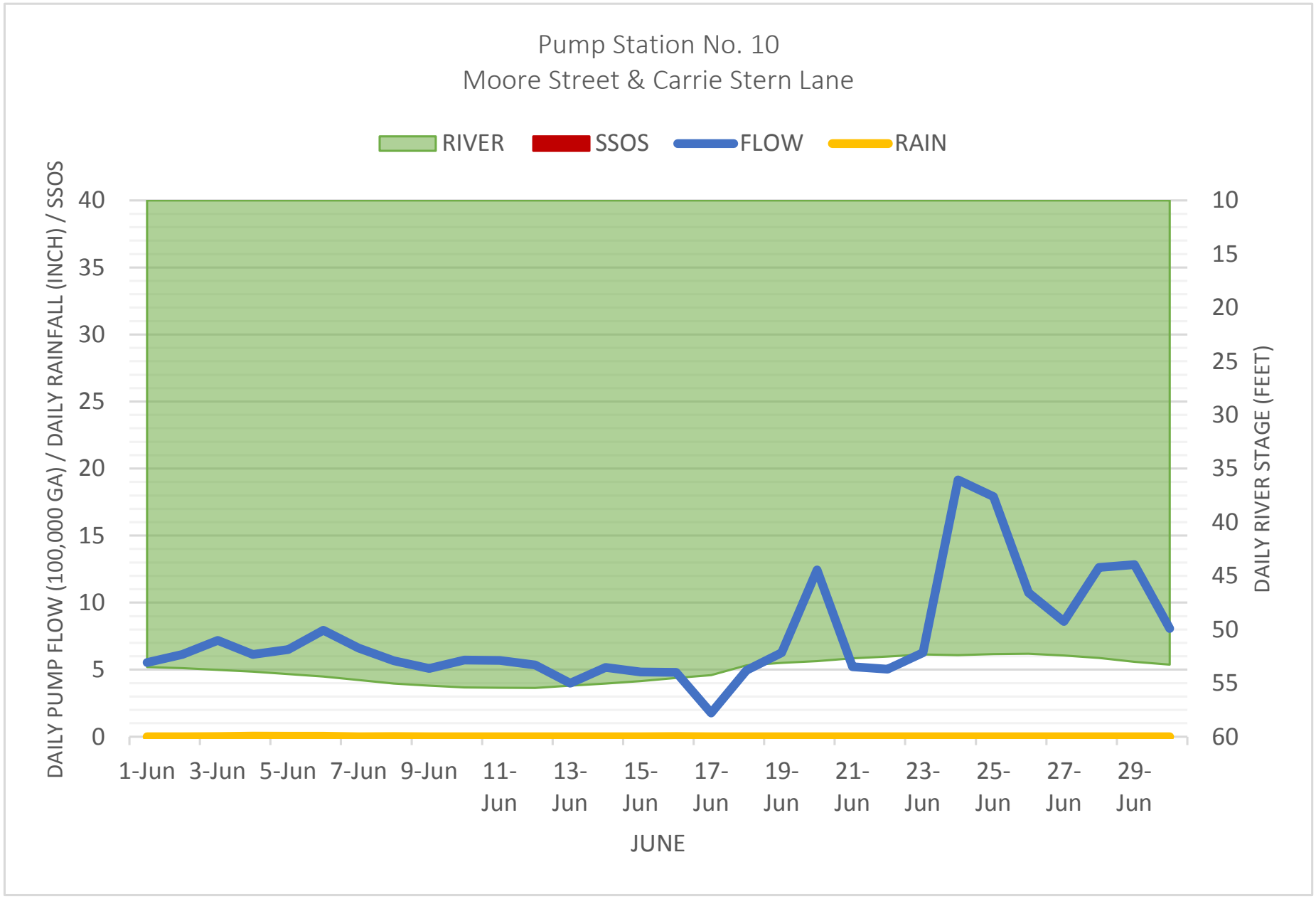
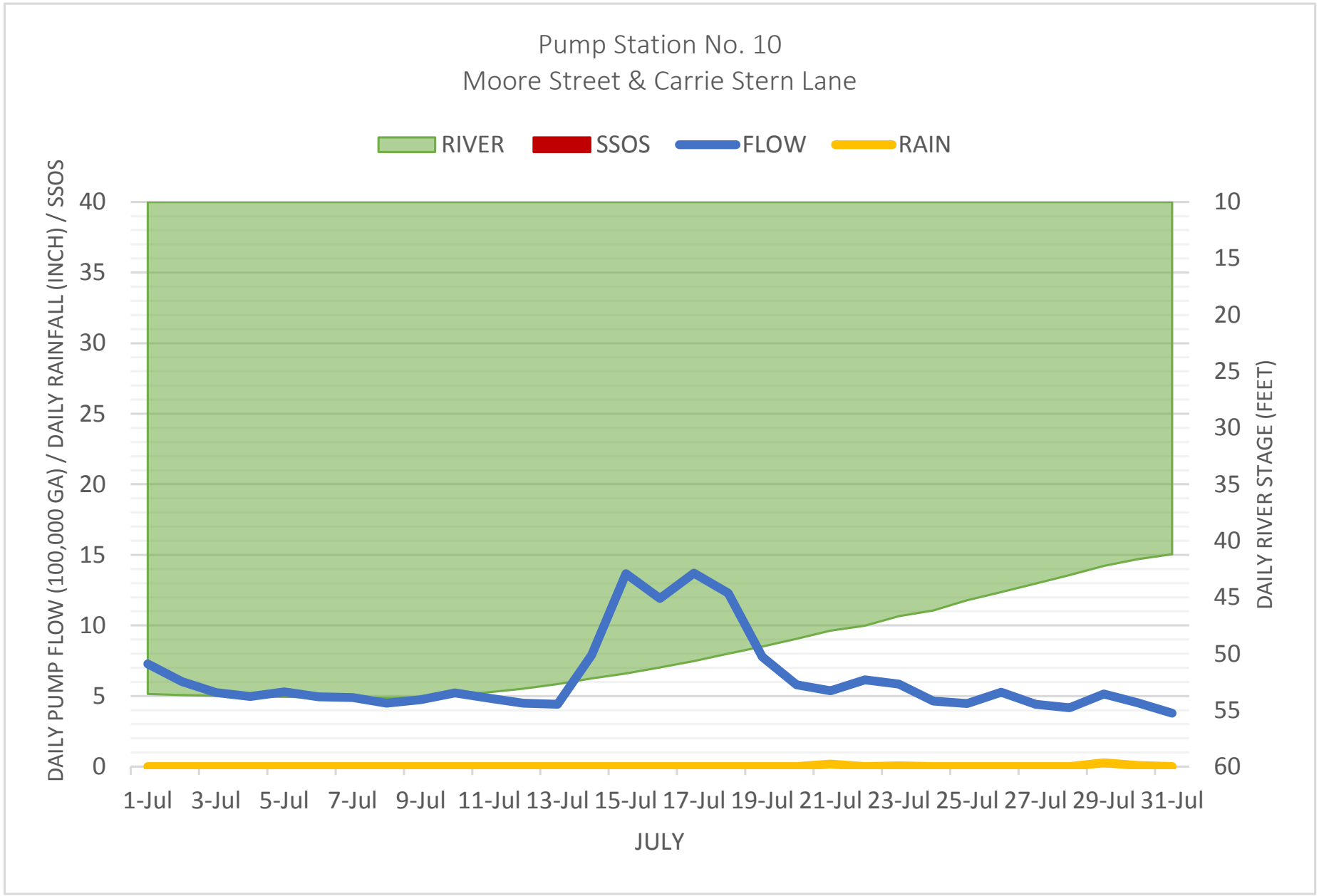
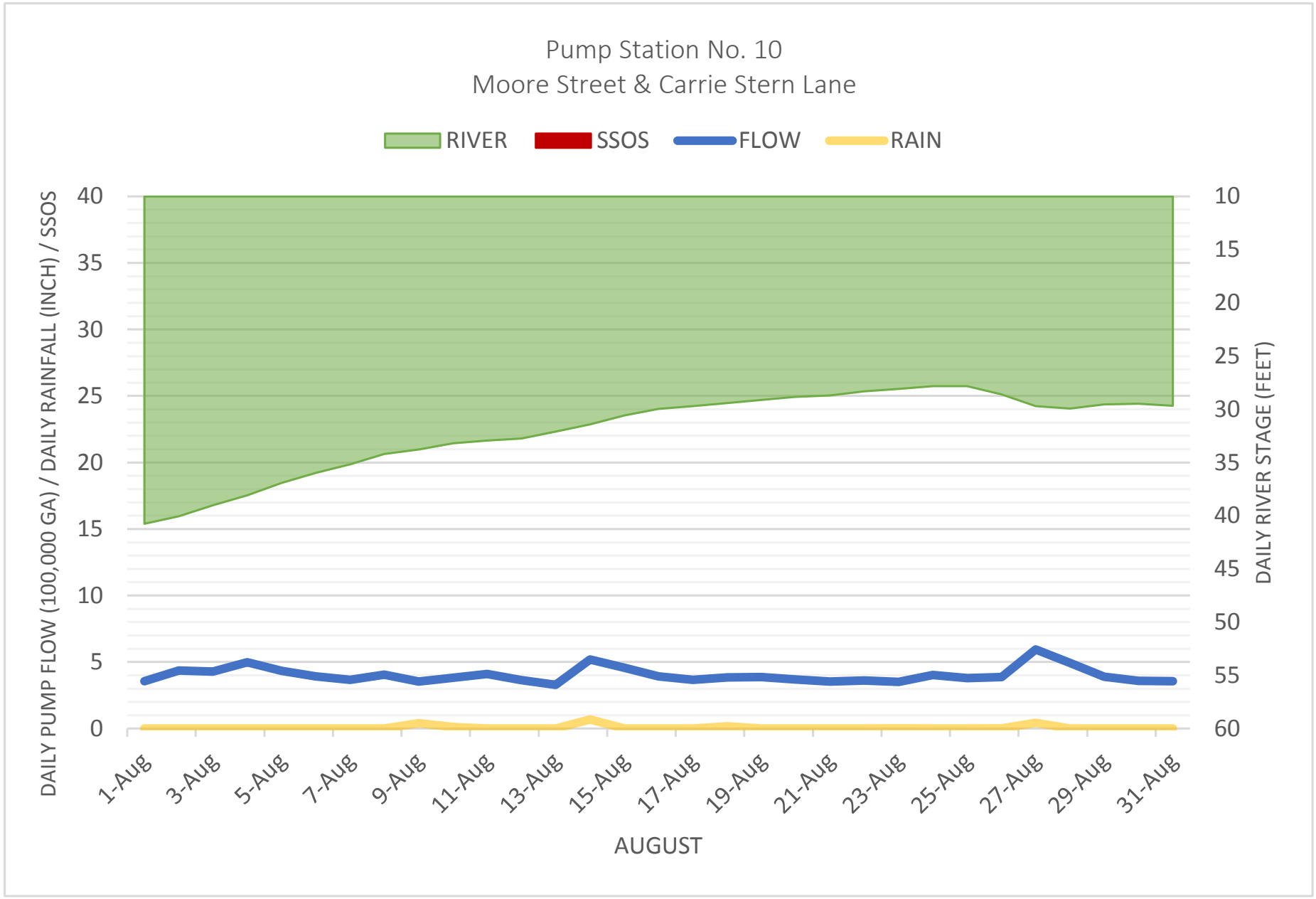
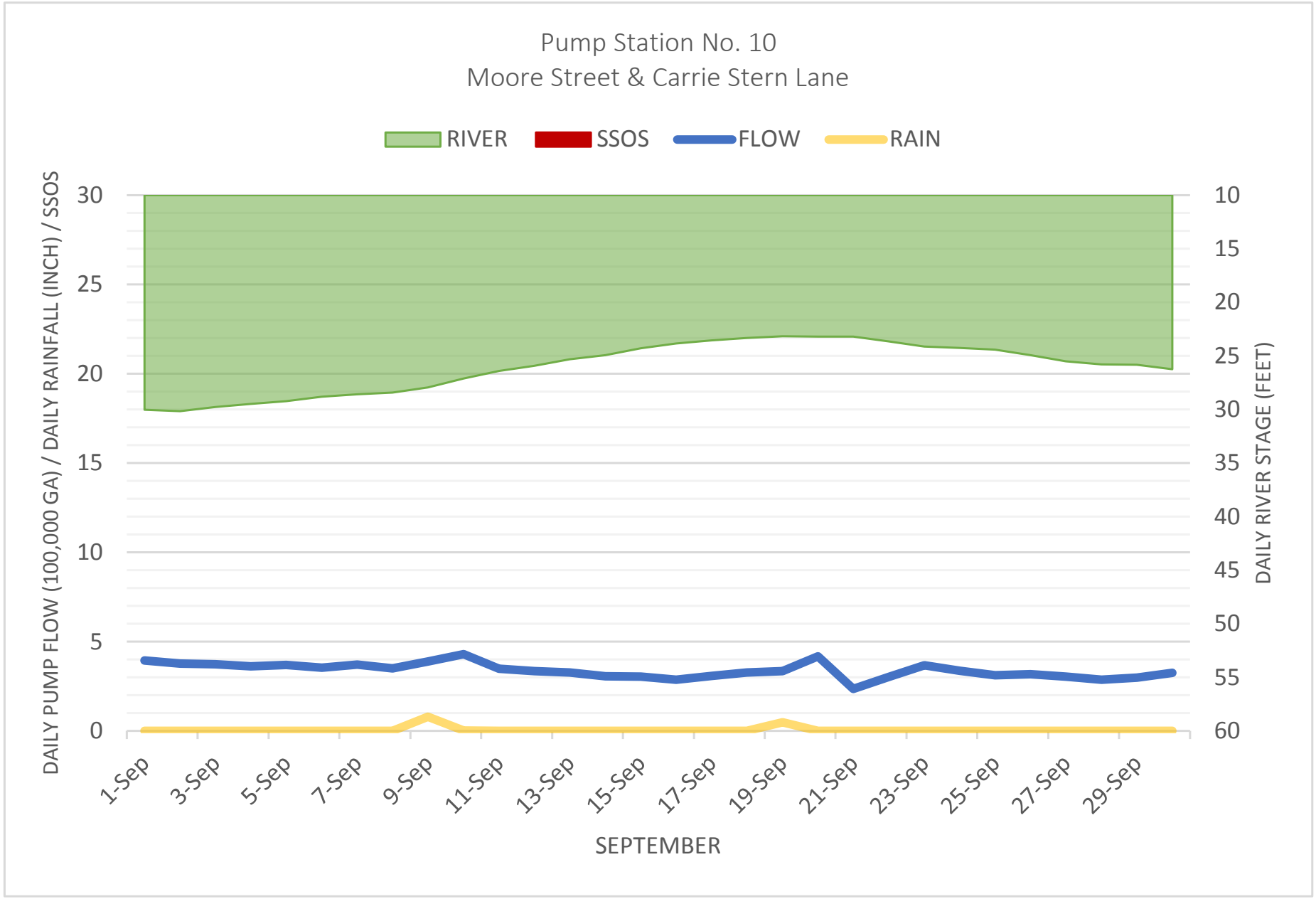
29-Apr
APRIL

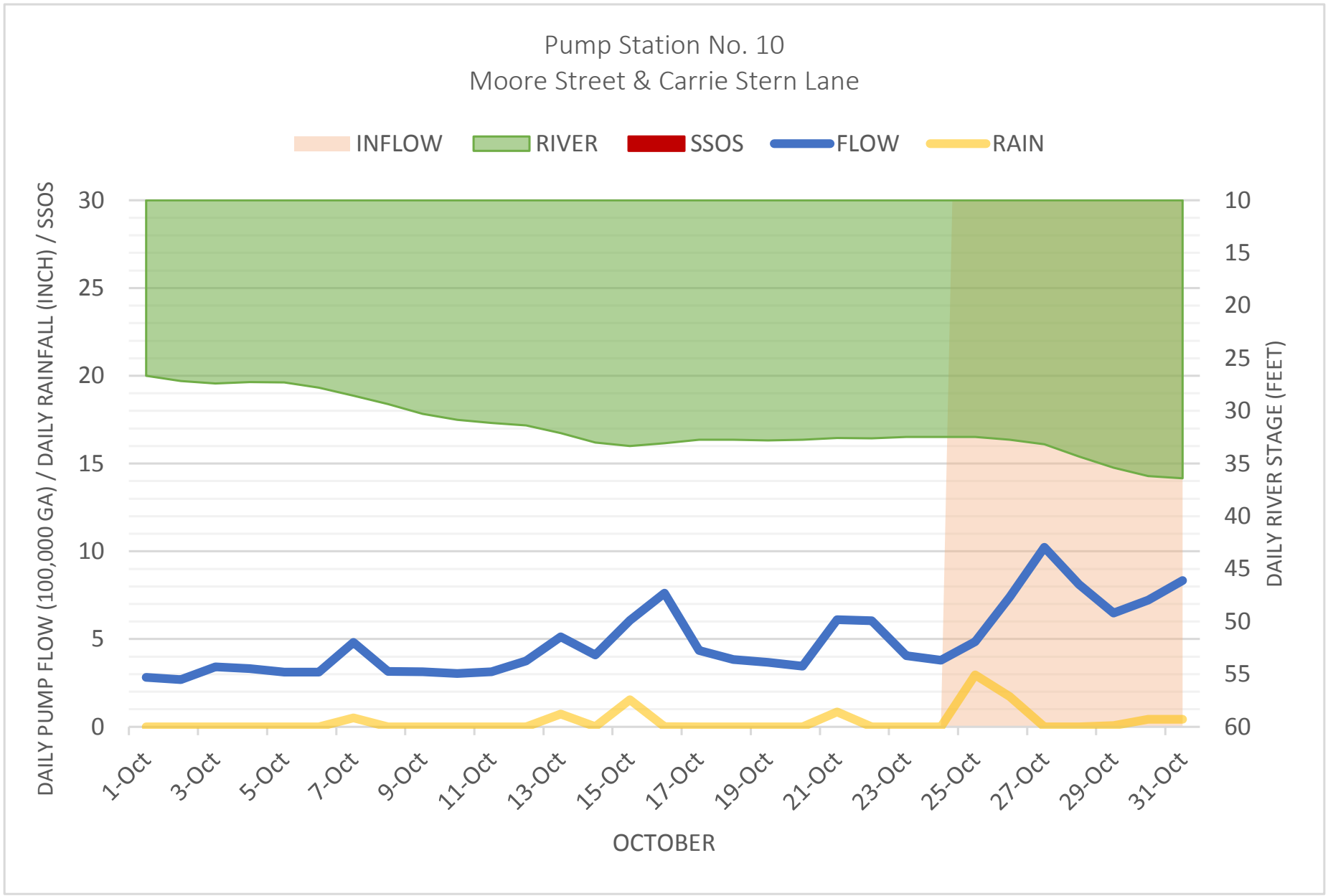

Pump Station No. 10
Moore Street & Carrie Stern Lane
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GA) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-May
3-May
5-May
7-May
9-May
11-May
13-May
15-May
17-May
19-May
21-May
23-May
25-May
27-May
29-May
31-May
MAY


Pump Station No. 10
Moore Street & Carrie Stern Lane
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GA) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Jun
3-Jun
5-Jun
7-Jun
9-Jun
11-Jun
13-Jun
15-Jun
17-Jun
19-Jun
21-Jun
23-Jun
25-Jun
27-Jun
29-Jun
JUNE


Pump Station No. 10
Moore Street & Carrie Stern Lane
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GA) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Jul
3-Jul
5-Jul
7-Jul
9-Jul
11-Jul
13-Jul
15-Jul
17-Jul
19-Jul
21-Jul
23-Jul
25-Jul
27-Jul
29-Jul
31-Jul
JULY


Pump Station No. 10
Moore Street & Carrie Stern Lane
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GA) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Aug
3-Aug
5-Aug
7-Aug
9-Aug
11-Aug
13-Aug
15-Aug
17-Aug
19-Aug
21-Aug
23-Aug
25-Aug
27-Aug
29-Aug
31-Aug
AUGUST


Pump Station No. 10
Moore Street & Carrie Stern Lane
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GA) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Sep
3-Sep
5-Sep
7-Sep
9-Sep
11-Sep
13-Sep
15-Sep
17-Sep
19-Sep
21-Sep
23-Sep
25-Sep
27-Sep
29-Sep
SEPTEMBER


Pump Station No. 10
Moore Street & Carrie Stern Lane
INFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GA) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Oct
3-Oct
5-Oct
7-Oct
9-Oct
11-Oct
13-Oct
15-Oct
17-Oct
19-Oct
21-Oct
23-Oct
25-Oct
27-Oct
29-Oct
31-Oct
OCTOBER

APPENDIX 21

MS16/PS54 I/I WORKSHEET

MS16/PS54
INFLOW & INFILTRATION WORKSHEET

Infiltration

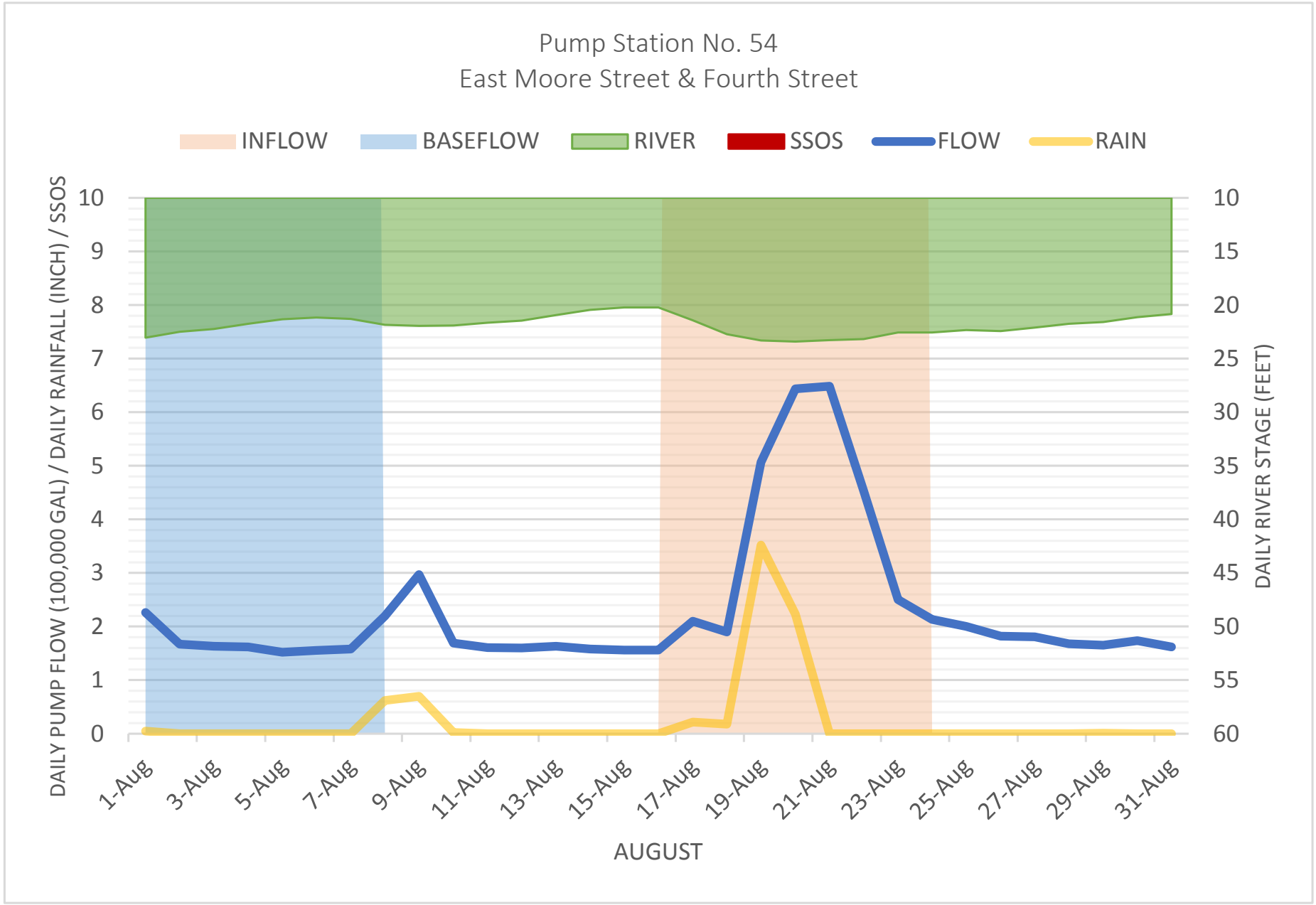
	feet	miles	diameter	inch-miles	
15" Gravity	1591	0.30	15.00	4.519886	
12" Gravity	456	0.09	12.00	1.036364	
10" Gravity	3897	0.74	10.00	7.380682	
8" Gravity	19918	3.77	8	30.17879	
laterals	12450	2.36	4	9.431818	
				52.54754	**total inch-miles in system**
		maximum average infiltration	inch-miles		
		237,285.7143	52.55	**4515.639**	**total gpd/idm**

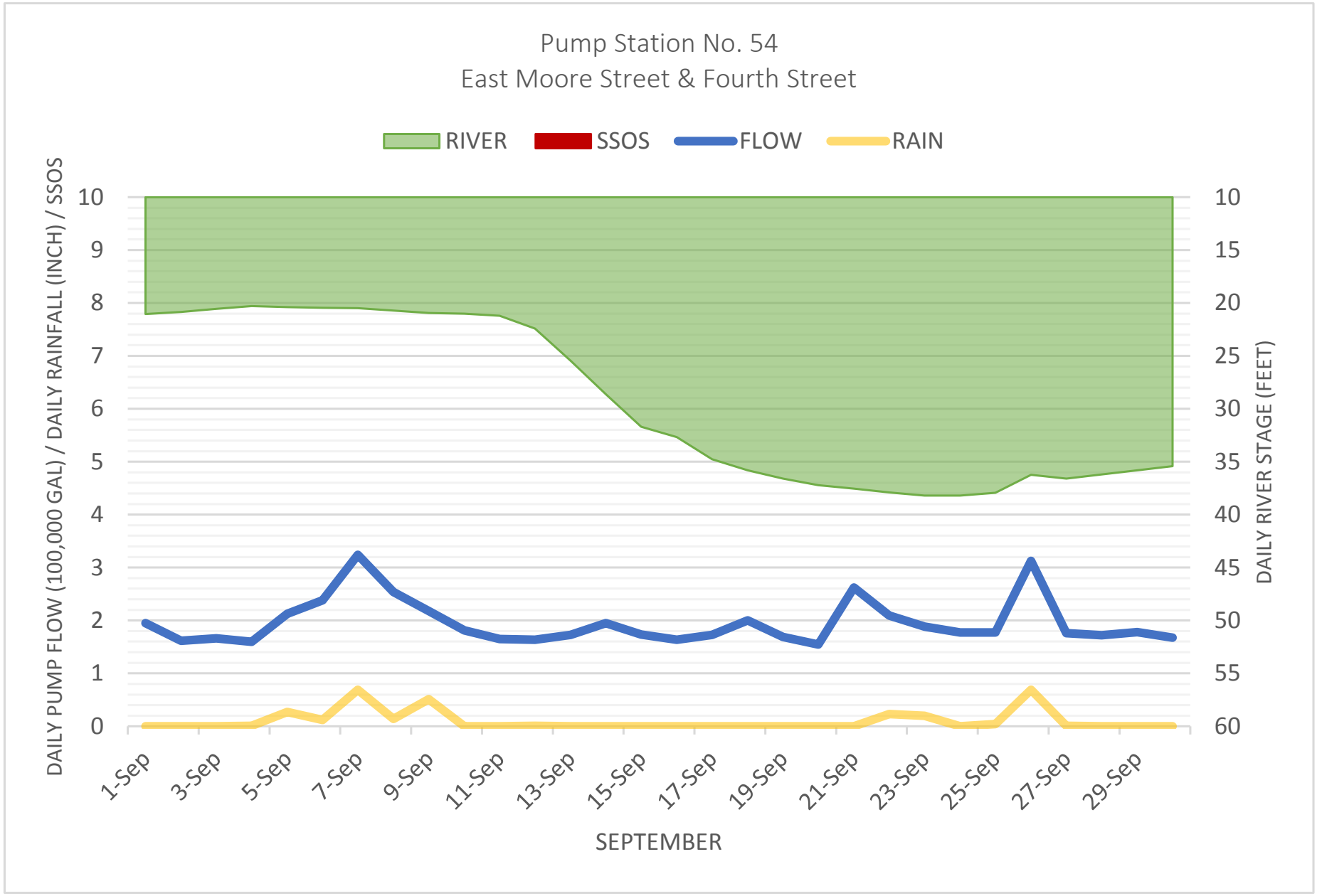
Inflow

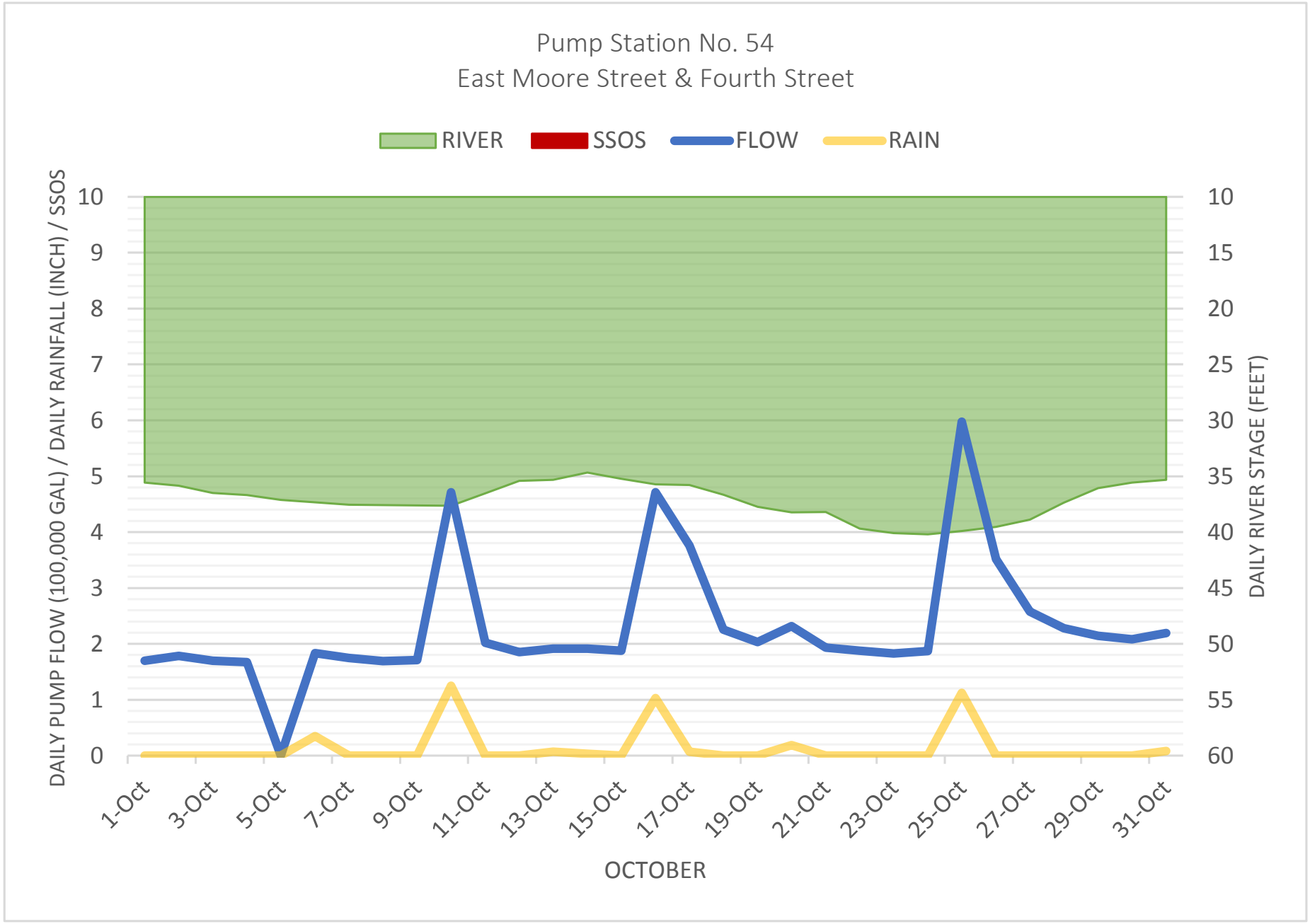
	feet	miles	diameter	inch-miles	
15" Gravity	1591	0.30	15.00	4.519886	
12" Gravity	456	0.09	12.00	1.036364	
10" Gravity	3897	0.74	10.00	7.380682	
8" Gravity	19918	3.77	8.00	30.17879	
laterals	12450	2.36	4.00	9.431818	
TOTAL	32368				
				52.54754	**total inch-miles in system**
		maximum average inflow	inch-miles		
		245,500.0000	52.55	**4671.96**	**total gpd/idm**

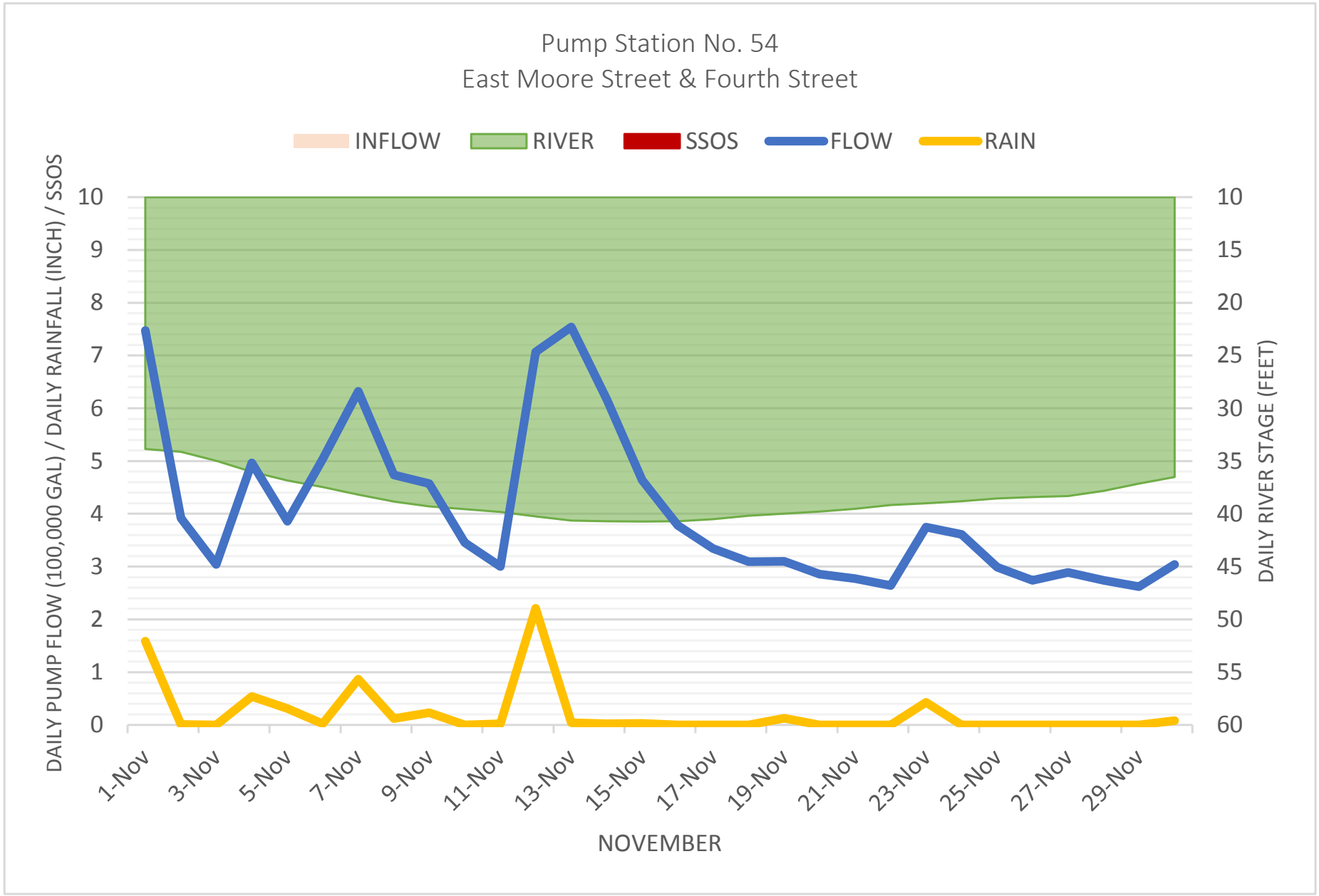
APPENDIX 22

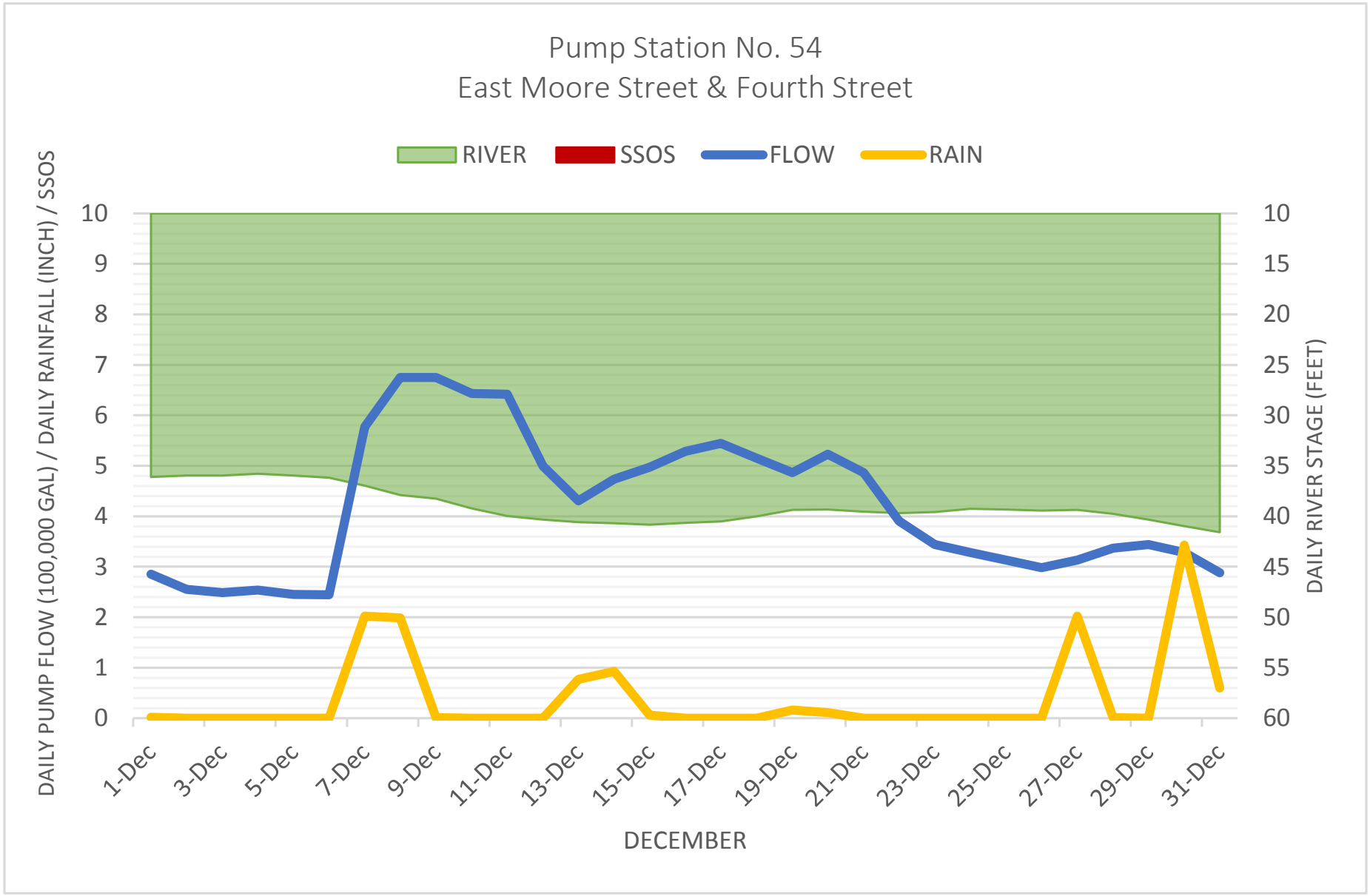
MS16/PS54 GRAPHS

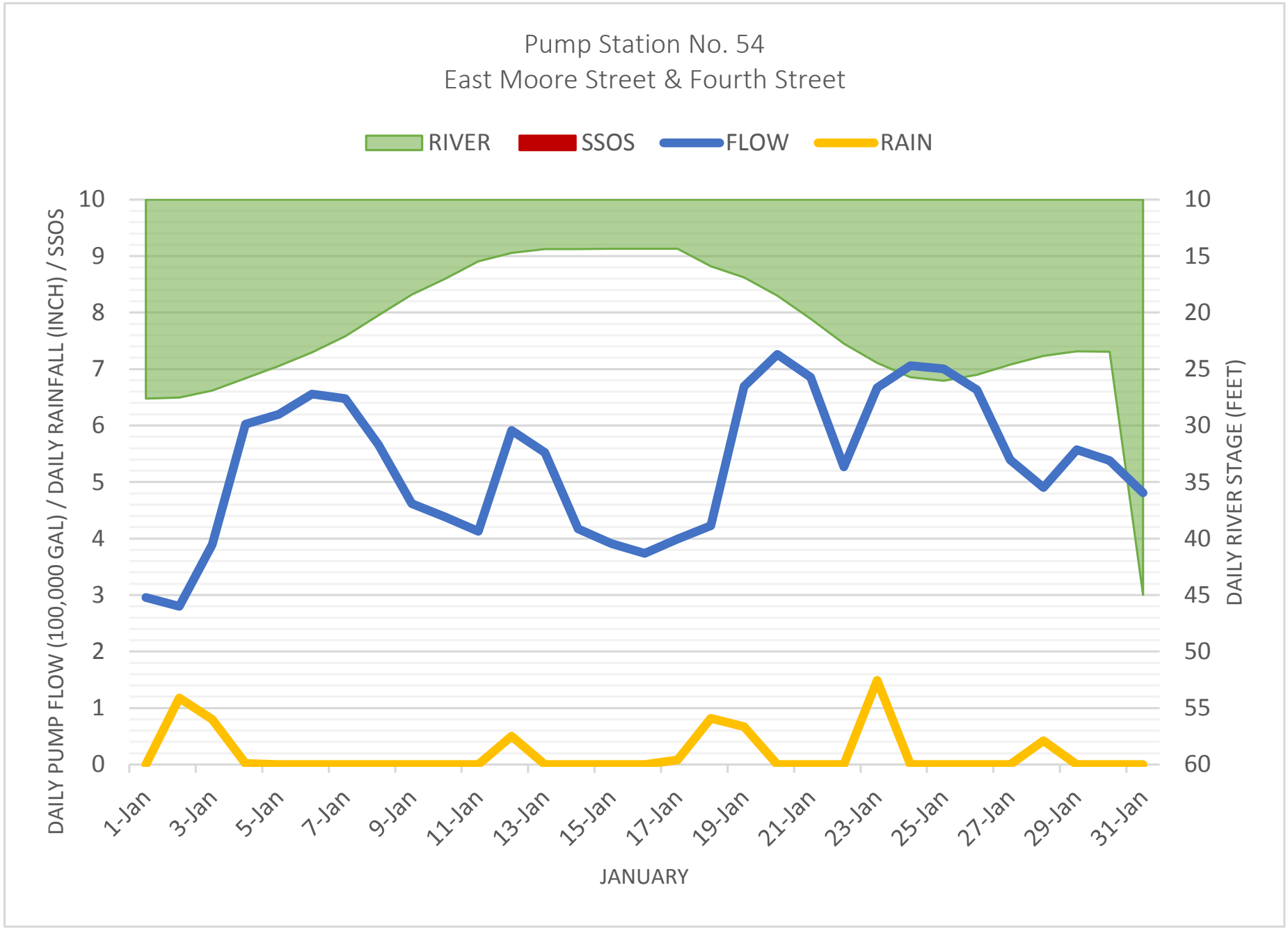

Pump Station No. 54
East Moore Street & Fourth Street
INFLOW
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
0
1
2
3
4
5
6
7
8
9
10
10
15
20
25
30
35
40
45
50
55
60
1-Aug
3-Aug
5-Aug
7-Aug
9-Aug
11-Aug
13-Aug
15-Aug
17-Aug
19-Aug
21-Aug
23-Aug
25-Aug
27-Aug
29-Aug
31-Aug
AUGUST

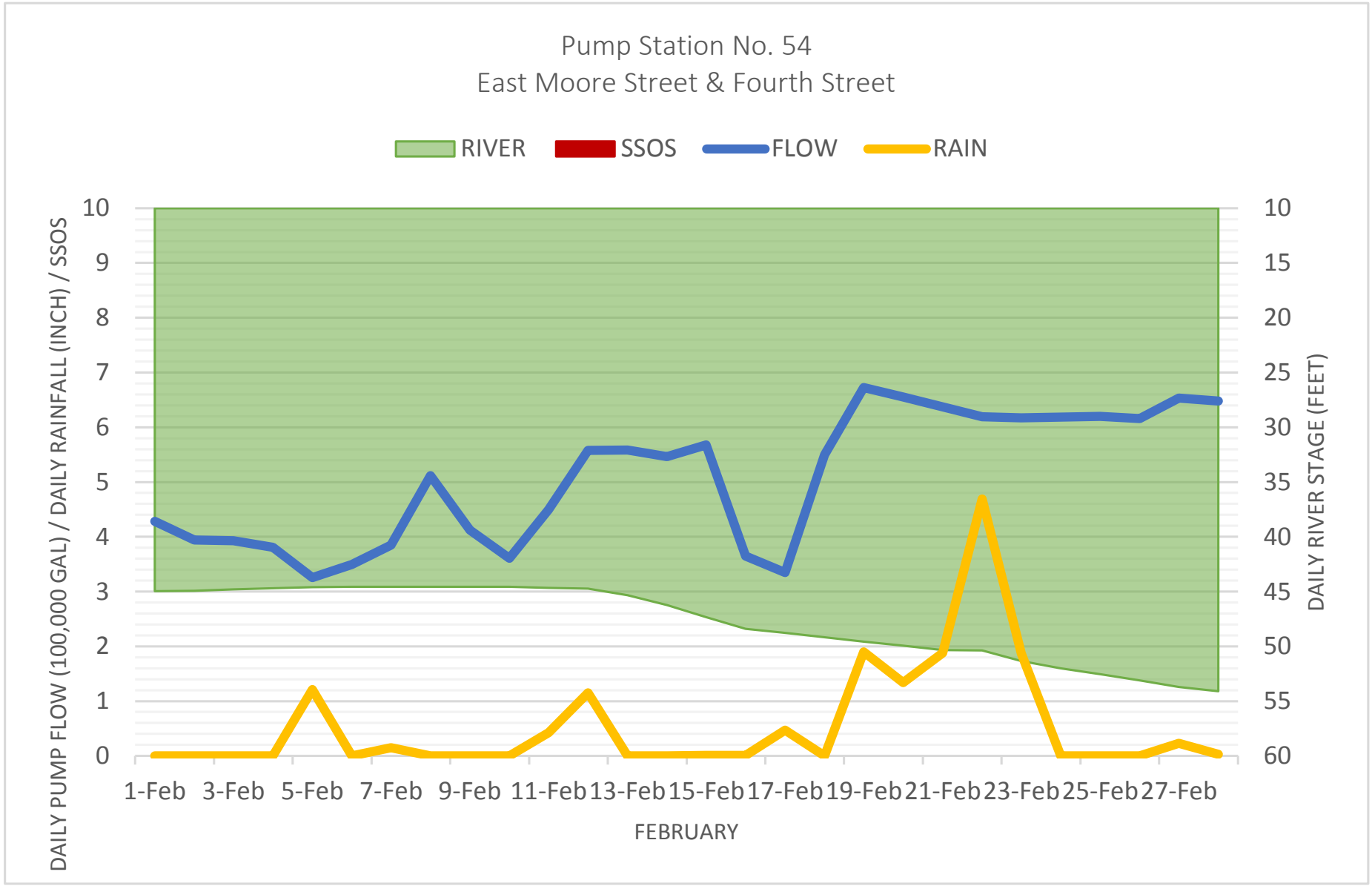

Pump Station No. 54
East Moore Street & Fourth Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
10
9
8
7
6
5
4
3
2
1
0
10
15
20
25
30
35
40
45
50
55
60
1-Sep
3-Sep
5-Sep
7-Sep
9-Sep
11-Sep
13-Sep
15-Sep
17-Sep
19-Sep
21-Sep
23-Sep
25-Sep
27-Sep
29-Sep
SEPTEMBER

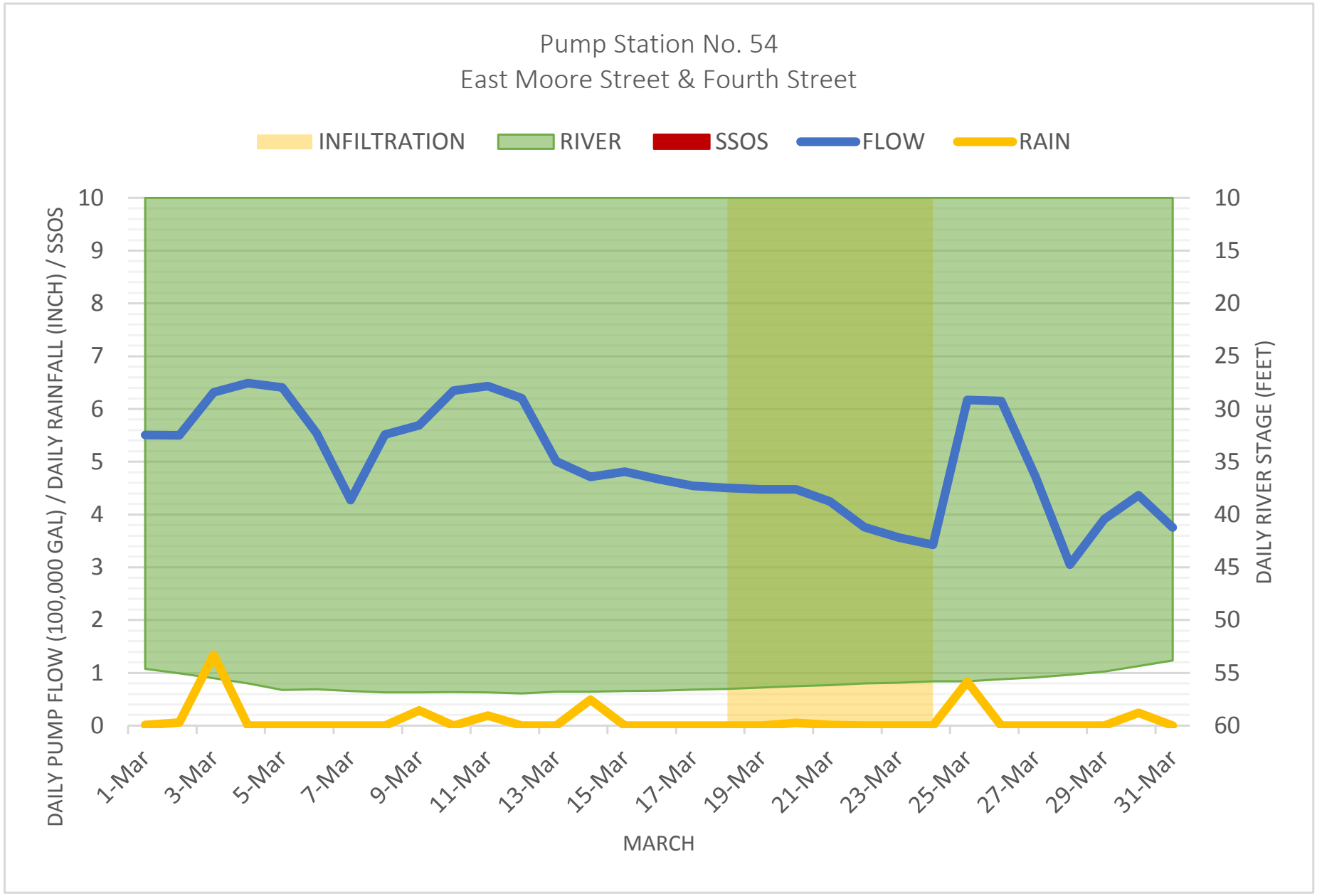

Pump Station No. 54
East Moore Street & Fourth Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
10
9
8
7
6
5
4
3
2
1
0
10
15
20
25
30
35
40
45
50
55
60
1-Oct
3-Oct
5-Oct
7-Oct
9-Oct
11-Oct
13-Oct
15-Oct
17-Oct
19-Oct
21-Oct
23-Oct
25-Oct
27-Oct
29-Oct
31-Oct
OCTOBER


Pump Station No. 54
East Moore Street & Fourth Street
INFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
10
9
8
7
6
5
4
3
2
1
0
10
15
20
25
30
35
40
45
50
55
60
1-Nov
3-Nov
5-Nov
7-Nov
9-Nov
11-Nov
13-Nov
15-Nov
17-Nov
19-Nov
21-Nov
23-Nov
25-Nov
27-Nov
29-Nov
NOVEMBER


Pump Station No. 54
East Moore Street & Fourth Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
10
9
8
7
6
5
4
3
2
1
0
10
15
20
25
30
35
40
45
50
55
60
1-Dec
3-Dec
5-Dec
7-Dec
9-Dec
11-Dec
13-Dec
15-Dec
17-Dec
19-Dec
21-Dec
23-Dec
25-Dec
27-Dec
29-Dec
31-Dec
DECEMBER


Pump Station No. 54
East Moore Street & Fourth Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
10
9
8
7
6
5
4
3
2
1
0
10
15
20
25
30
35
40
45
50
55
60
1-Jan
3-Jan
5-Jan
7-Jan
9-Jan
11-Jan
13-Jan
15-Jan
17-Jan
19-Jan
21-Jan
23-Jan
25-Jan
27-Jan
29-Jan
31-Jan
JANUARY


Pump Station No. 54
East Moore Street & Fourth Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
10
9
8
7
6
5
4
3
2
1
0
10
15
20
25
30
35
40
45
50
55
60
1-Feb
3-Feb
5-Feb
7-Feb
9-Feb
11-Feb
13-Feb
15-Feb
17-Feb
19-Feb
21-Feb
23-Feb
25-Feb
27-Feb
FEBRUARY


Pump Station No. 54
East Moore Street & Fourth Street
INFILTRATION
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
10
9
8
7
6
5
4
3
2
1
0
10
15
20
25
30
35
40
45
50
55
60
1-Mar
3-Mar
5-Mar
7-Mar
9-Mar
11-Mar
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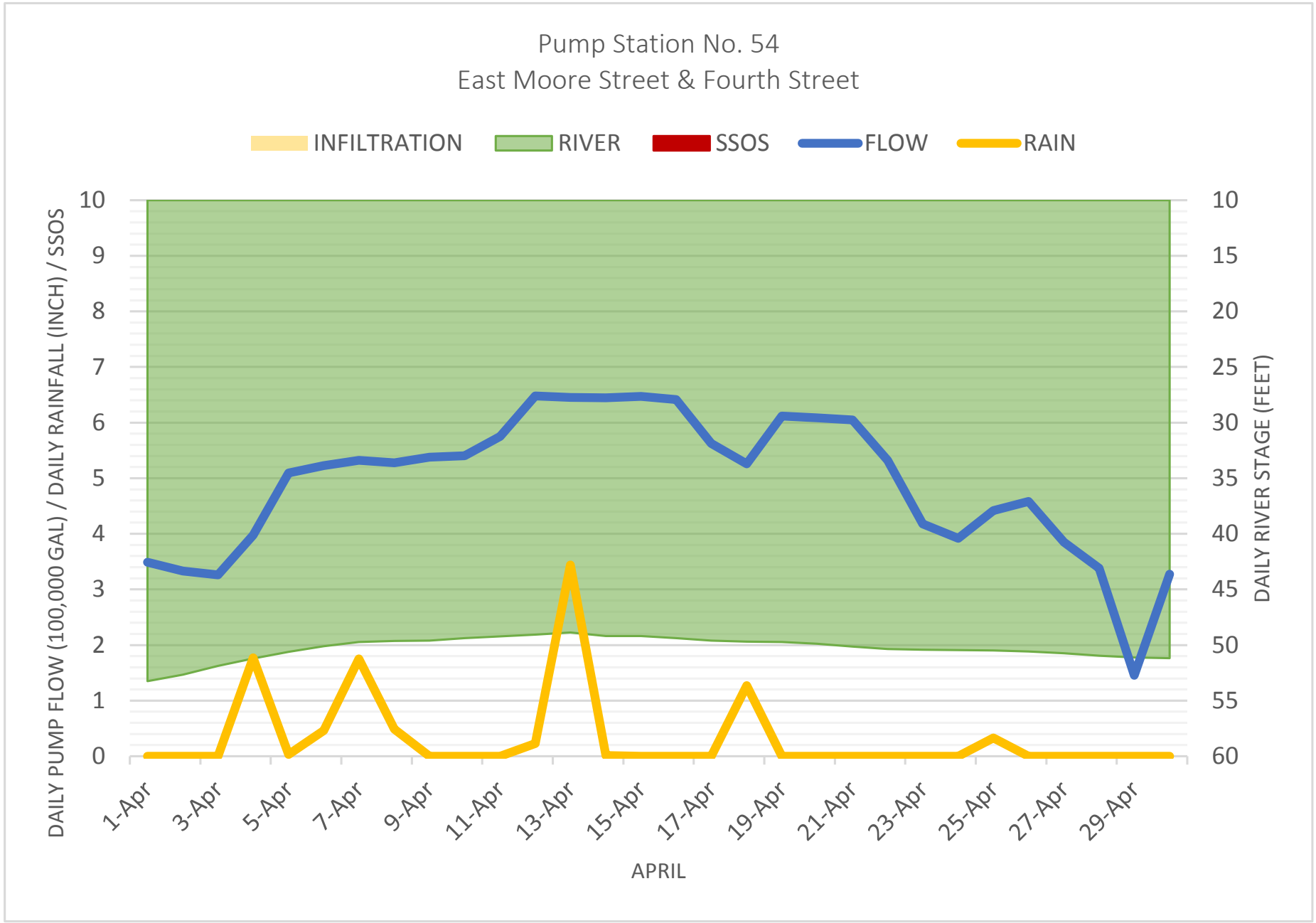
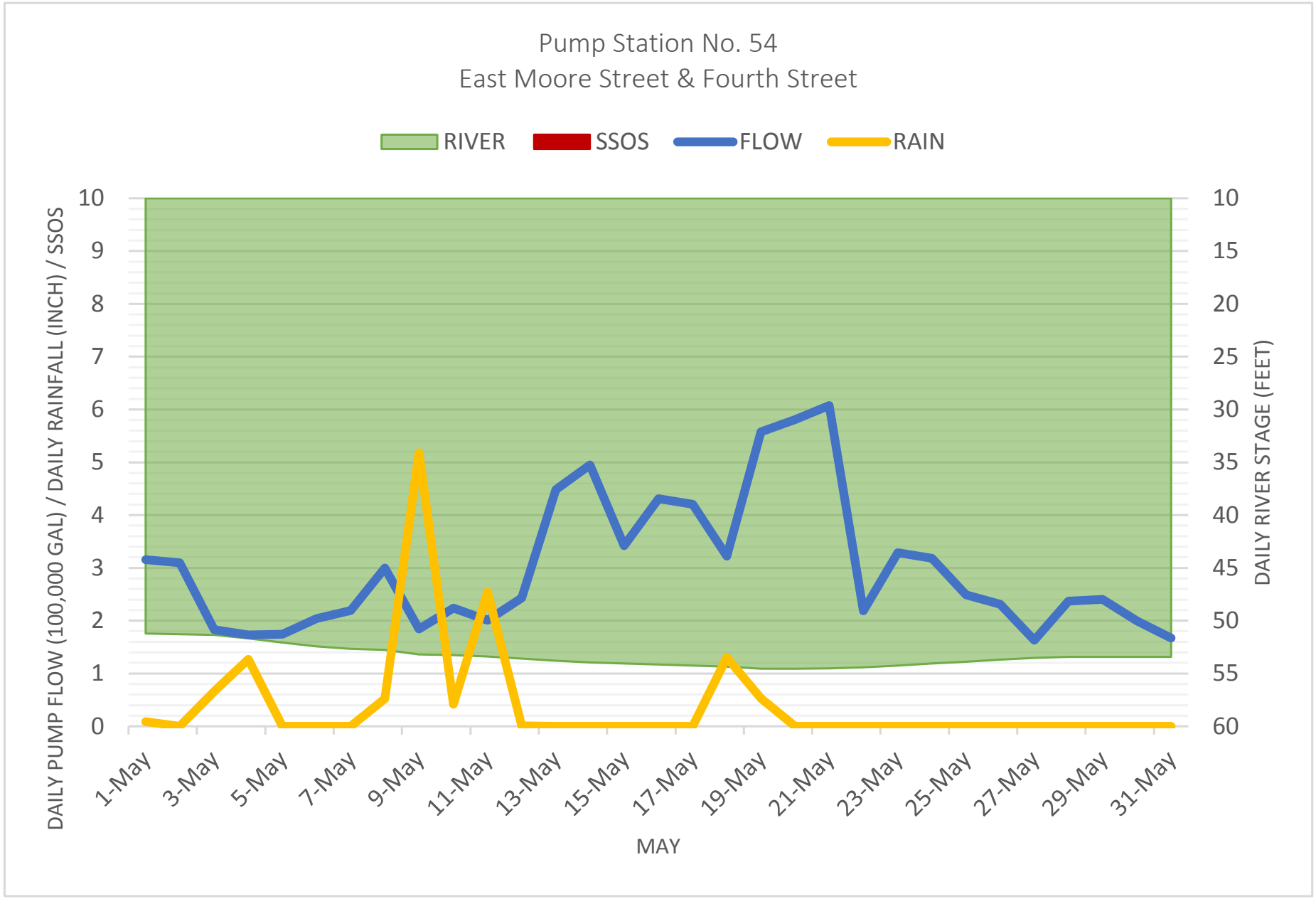
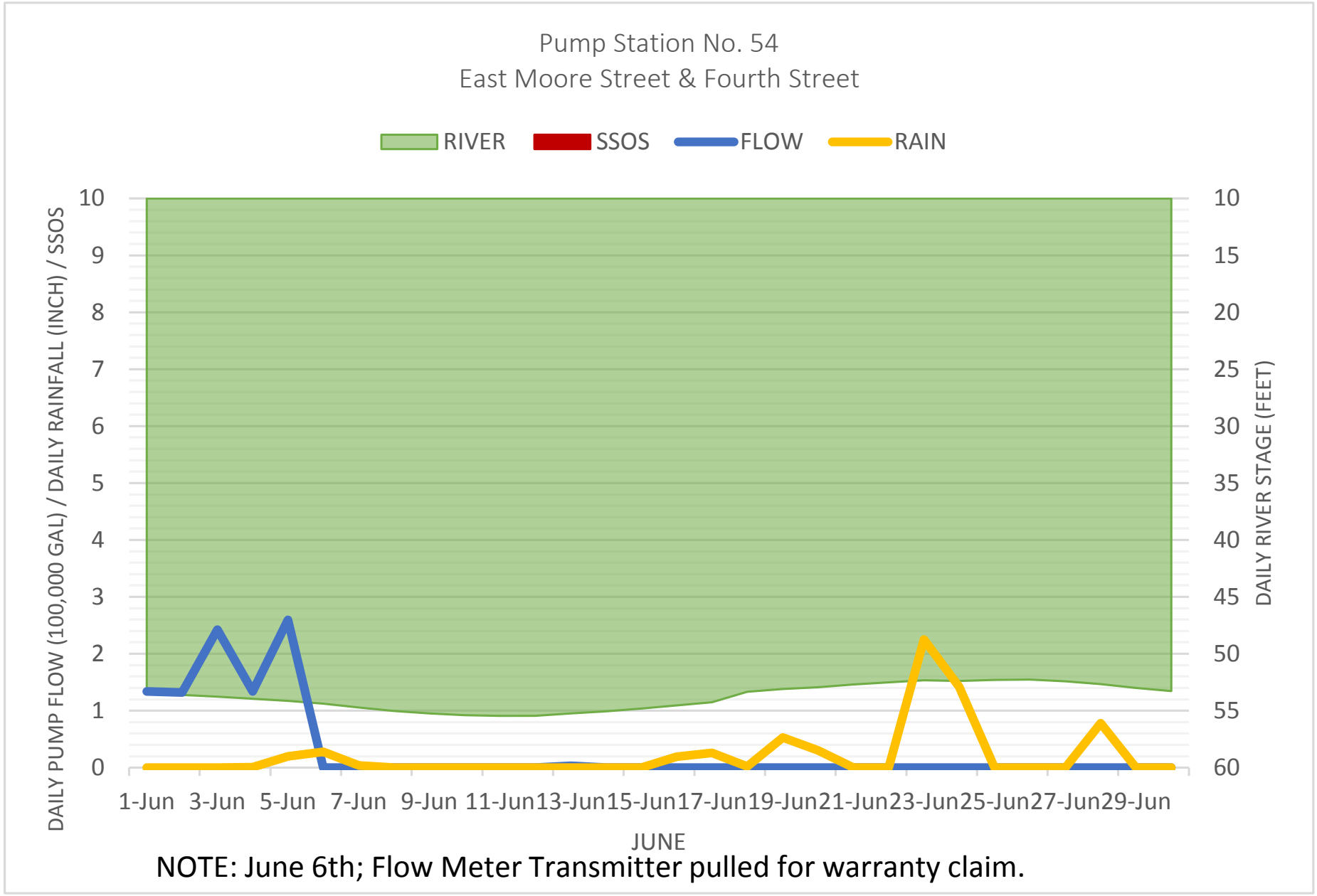
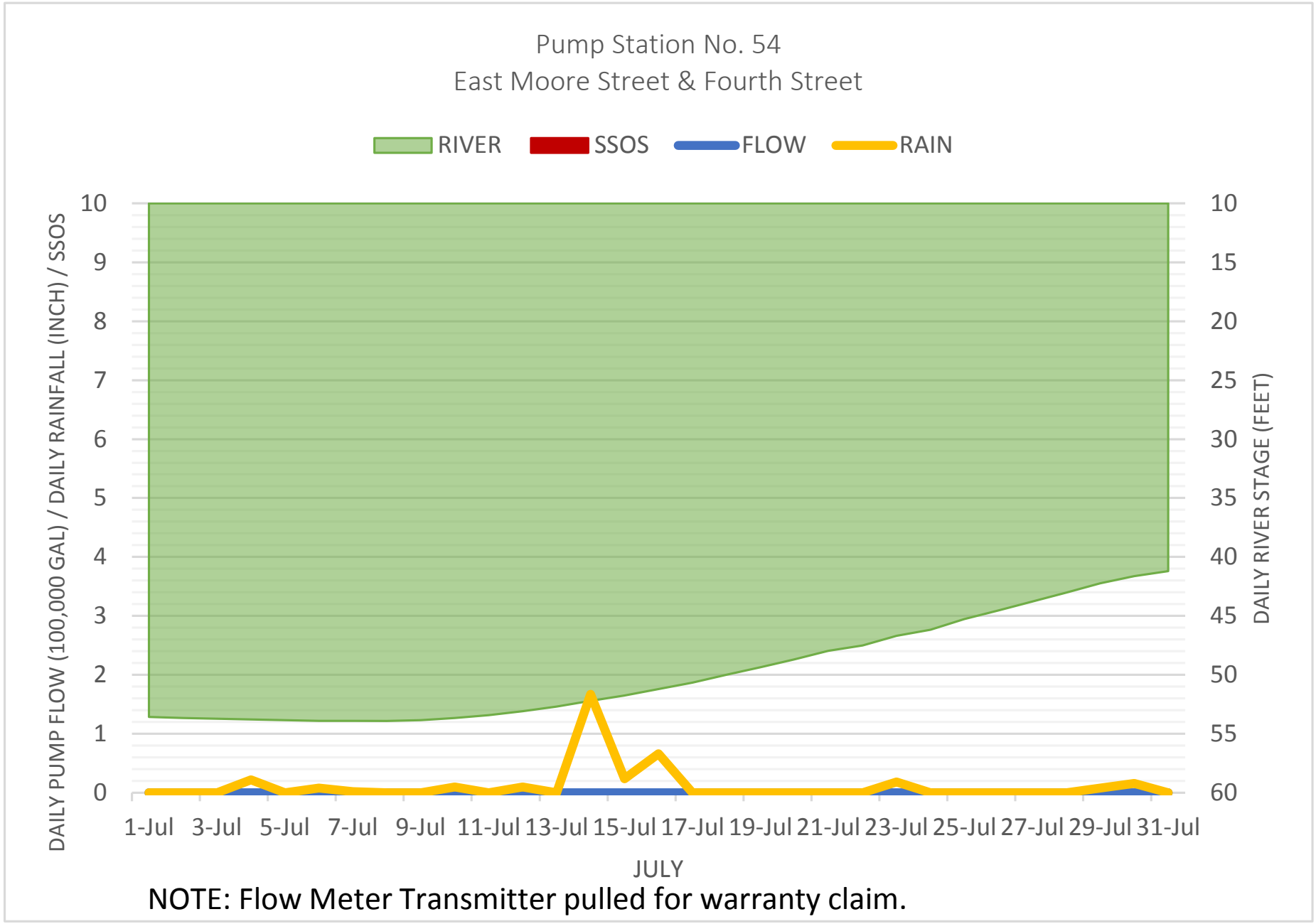
15-Mar
17-Mar
19-Mar
21-Mar
23-Mar
25-Mar
27-Mar
29-Mar
31-Mar
MARCH


Pump Station No. 54
East Moore Street & Fourth Street
INFILTRATION
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
10
9
8
7
6
5
4
3
2
1
0
10
15
20
25
30
35
40
45
50
55
60
1-Apr
3-Apr
5-Apr
7-Apr
9-Apr
11-Apr
13-Apr
15-Apr
17-Apr
19-Apr
21-Apr
23-Apr
25-Apr
27-Apr
29-Apr
APRIL

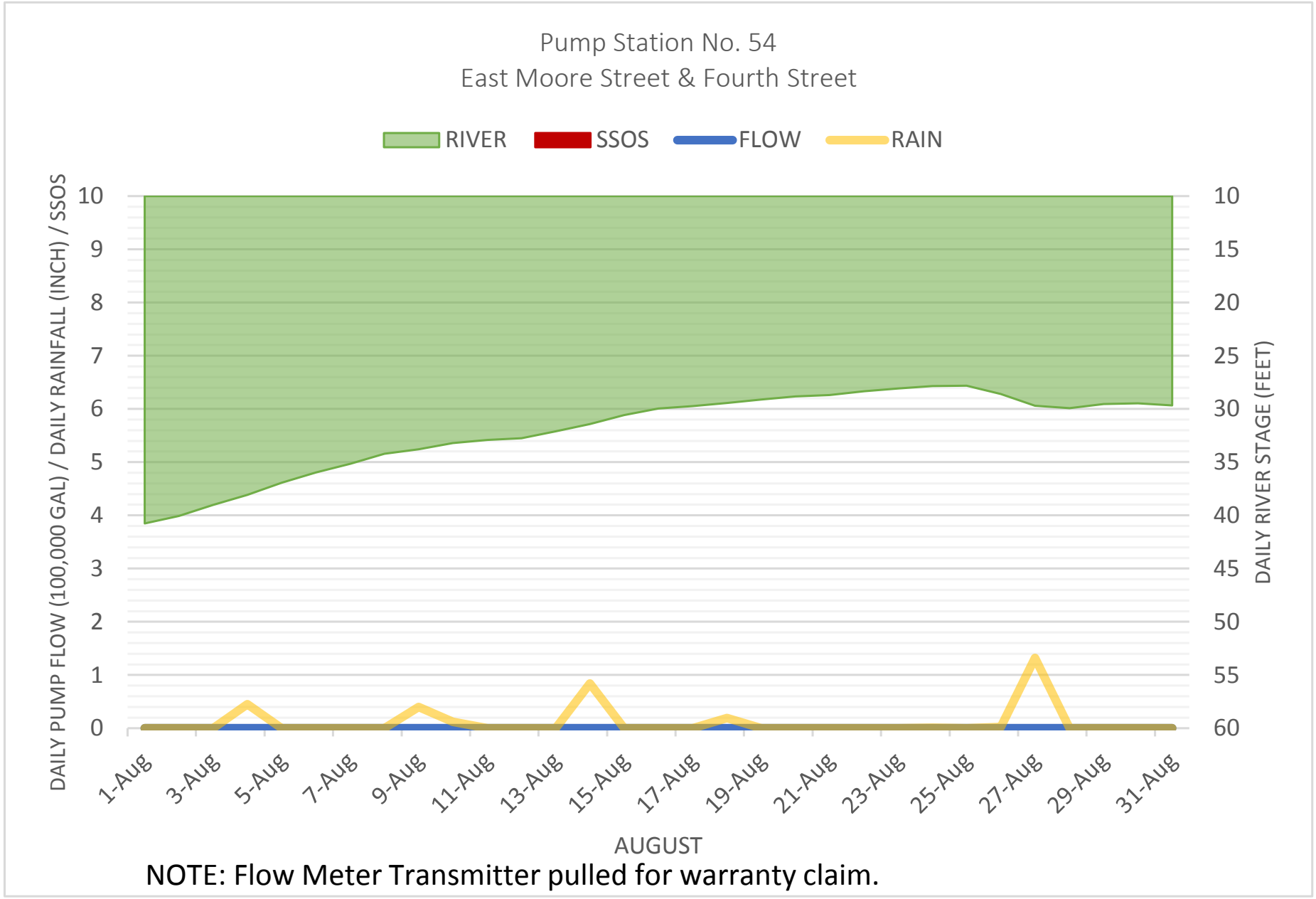

Pump Station No. 54
East Moore Street & Fourth Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
0
1
2
3
4
5
6
7
8
9
10
60
55
50
45
40
35
30
25
20
15
10
1-May
3-May
5-May
7-May
9-May
11-May
13-May
15-May
17-May
19-May
21-May
23-May
25-May
27-May
29-May
31-May
MAY



NOTE: June 6th; Flow Meter Transmitter pulled for warranty claim.



NOTE: Flow Meter Transmitter pulled for warranty claim.



NOTE: Flow Meter Transmitter pulled for warranty claim.

APPENDIX 23

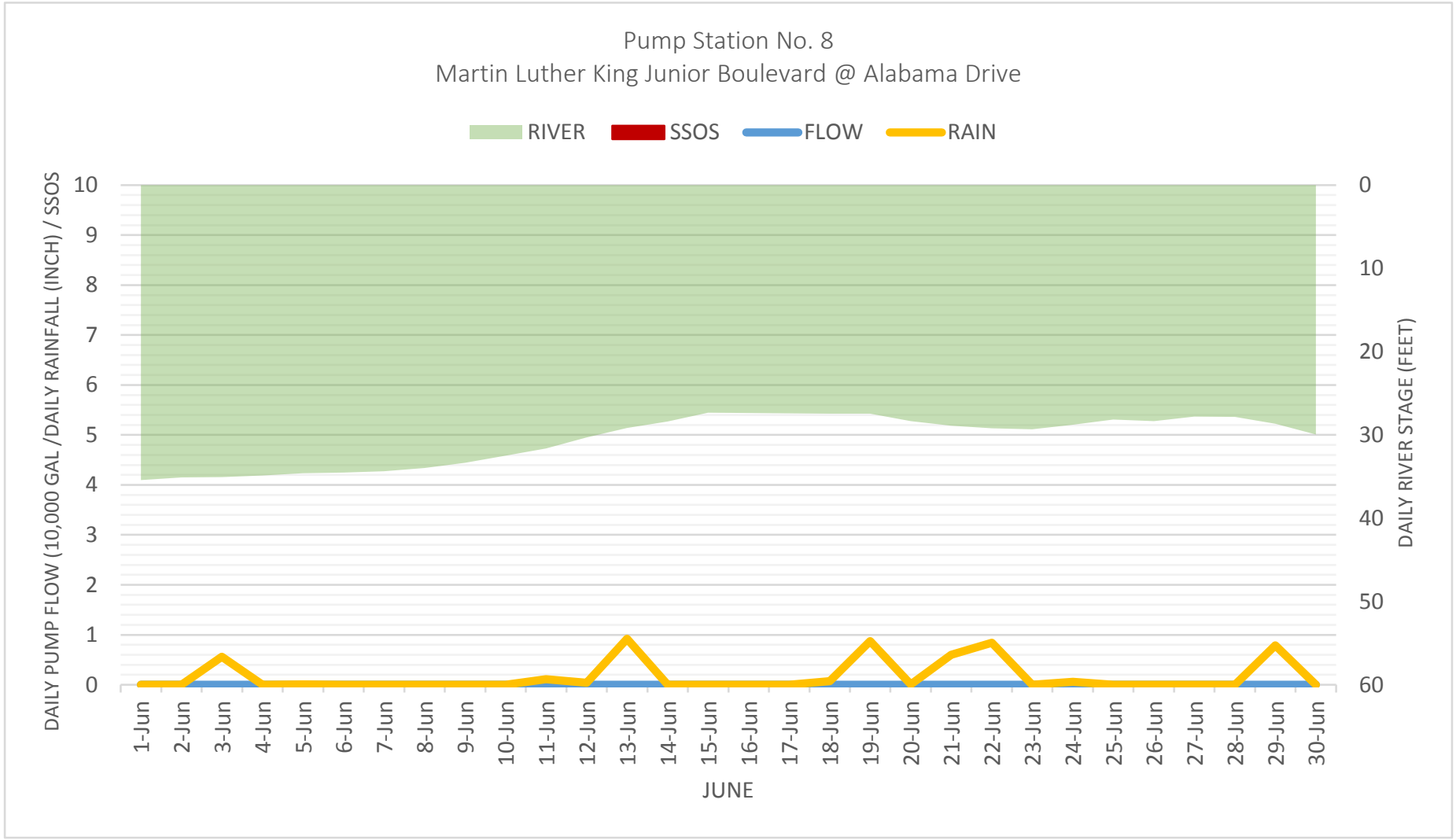
MS17/PS8 I/I WORKSHEET

MS17/PS8
INFLOW & INFILTRATION WORKSHEET

NO FLOW DATA AVAILABLE

APPENDIX 24

MS17/PS8 GRAPHS


Pump Station No. 8
Martin Luther King Junior Boulevard @ Alabama Drive
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL /DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
10
9
8
7
6
5
4
3
2
1
0
0
10
20
30
40
50
60
1-Jun
2-Jun
3-Jun
4-Jun
5-Jun
6-Jun
7-Jun
8-Jun
9-Jun
10-Jun
11-Jun
12-Jun
13-Jun
14-Jun
15-Jun
16-Jun
17-Jun
18-Jun
19-Jun
20-Jun
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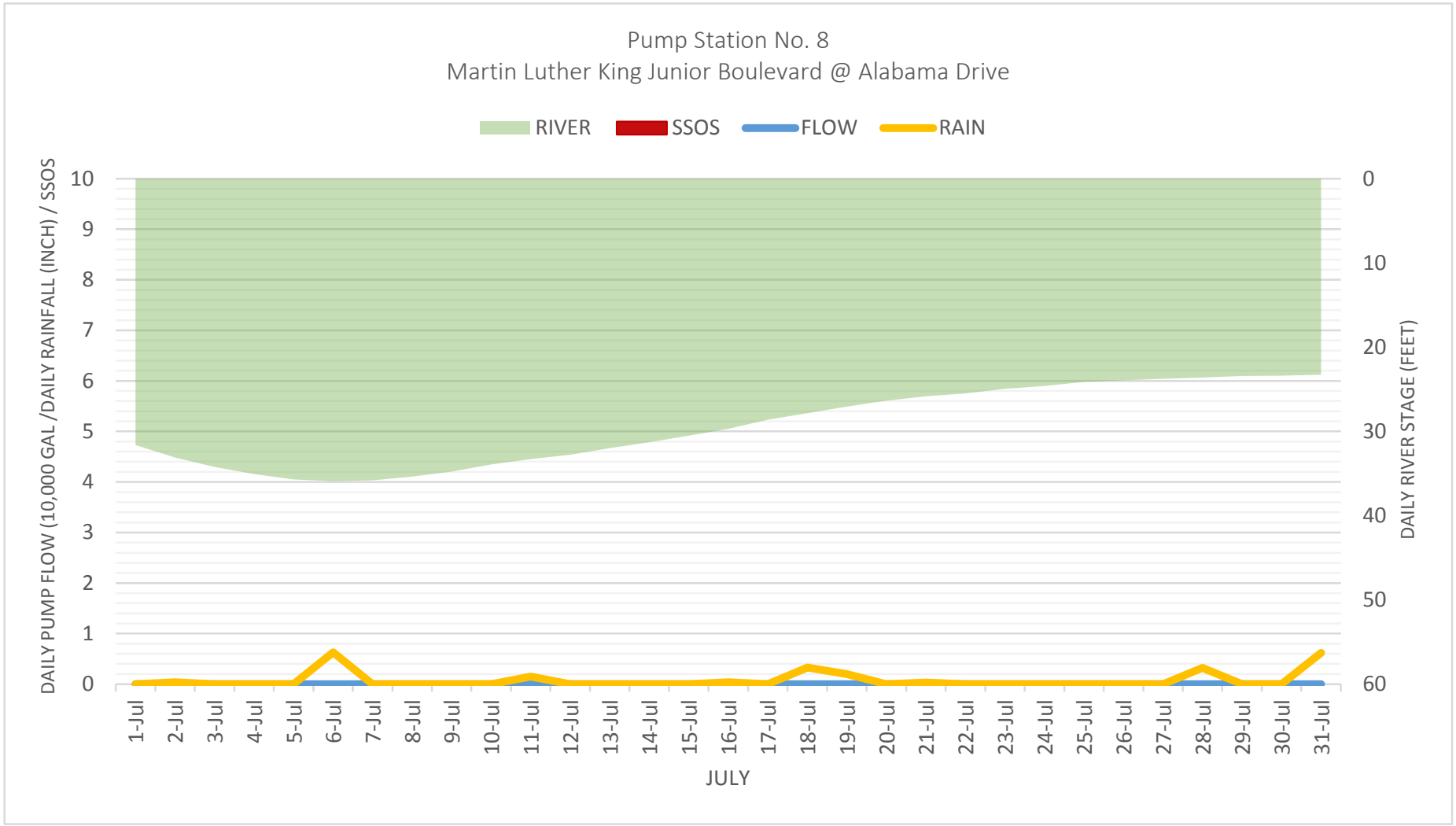
22-Jun
23-Jun
24-Jun
25-Jun
26-Jun
27-Jun
28-Jun
29-Jun
30-Jun
JUNE


Pump Station No. 8
Martin Luther King Junior Boulevard @ Alabama Drive
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL /DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
0
1
2
3
4
5
6
7
8
9
10
0
10
20
30
40
50
60
1-Jul
2-Jul
3-Jul
4-Jul
5-Jul
6-Jul
7-Jul
8-Jul
9-Jul
10-Jul
11-Jul
12-Jul
13-Jul
14-Jul
15-Jul
16-Jul
17-Jul
18-Jul
19-Jul
20-Jul
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25-Jul
26-Jul
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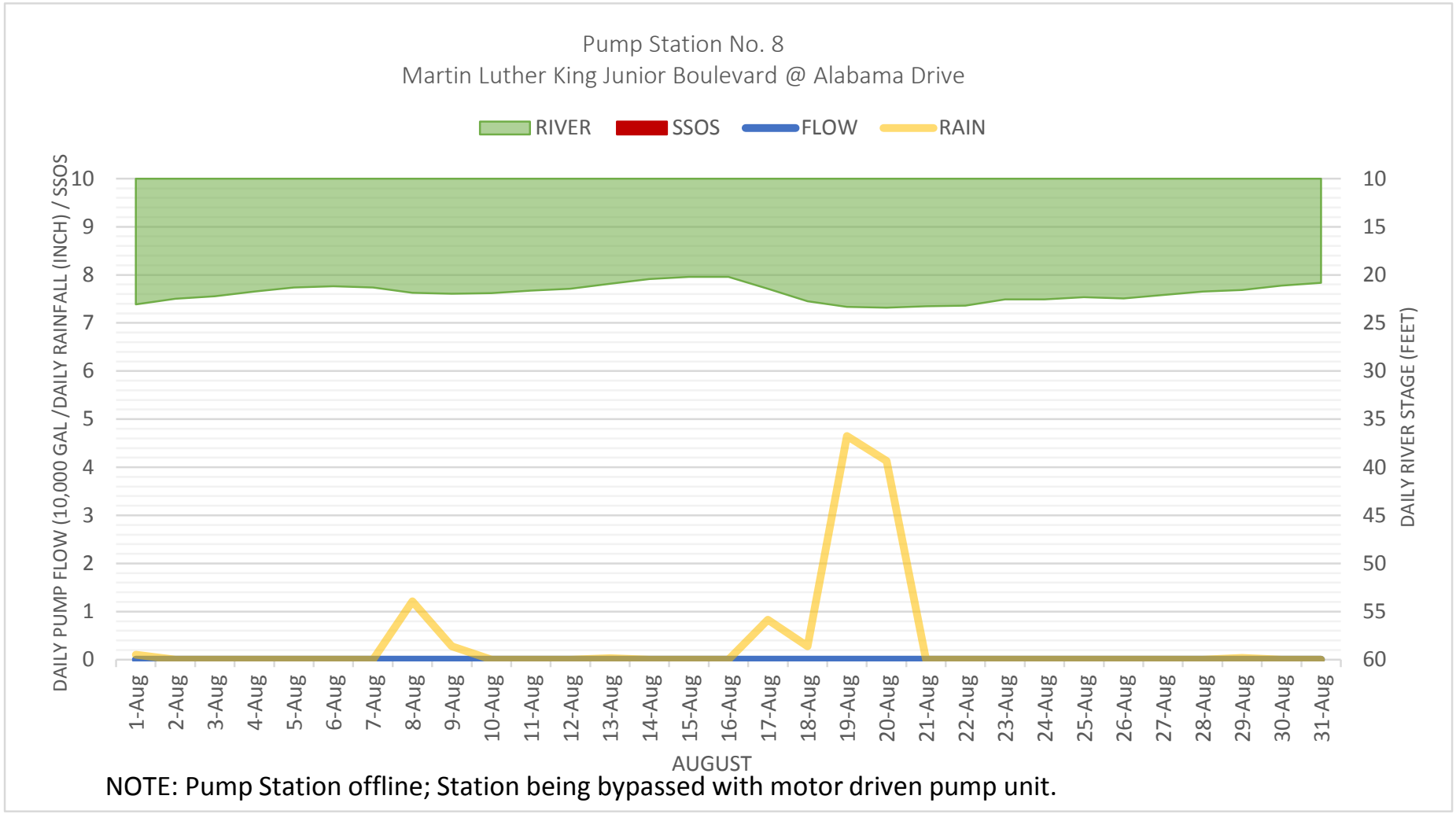
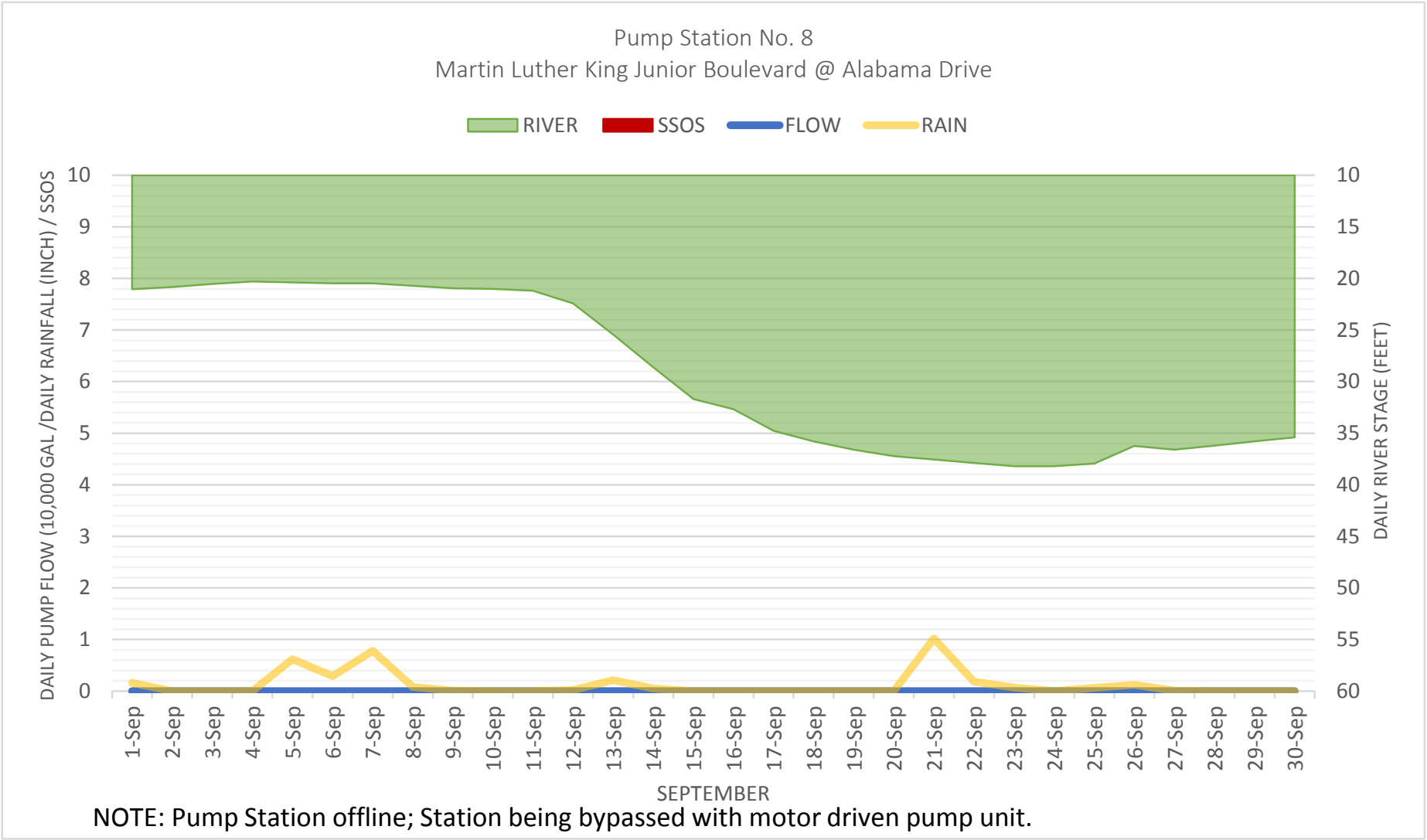
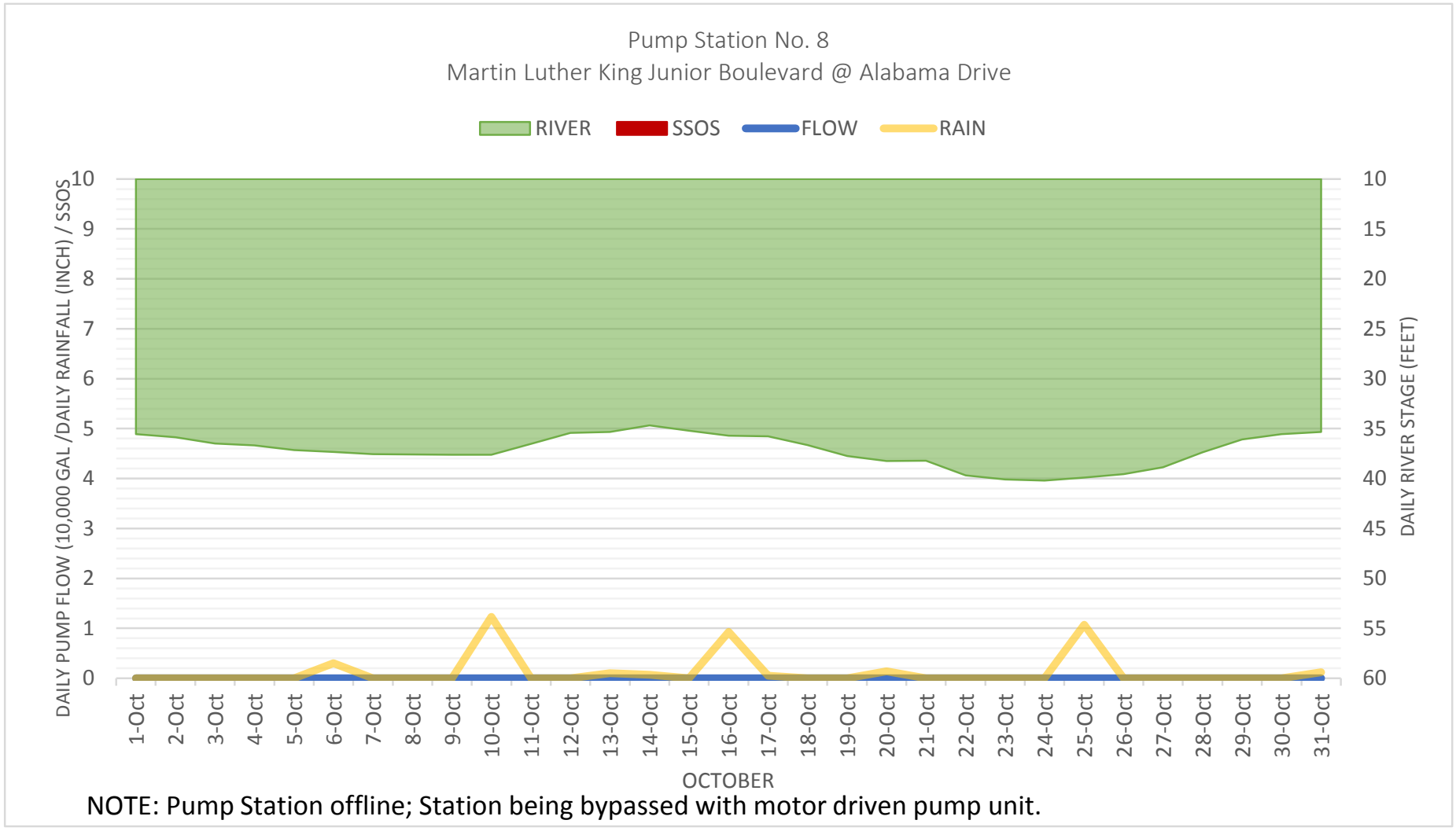
28-Jul
29-Jul
30-Jul
31-Jul
JULY



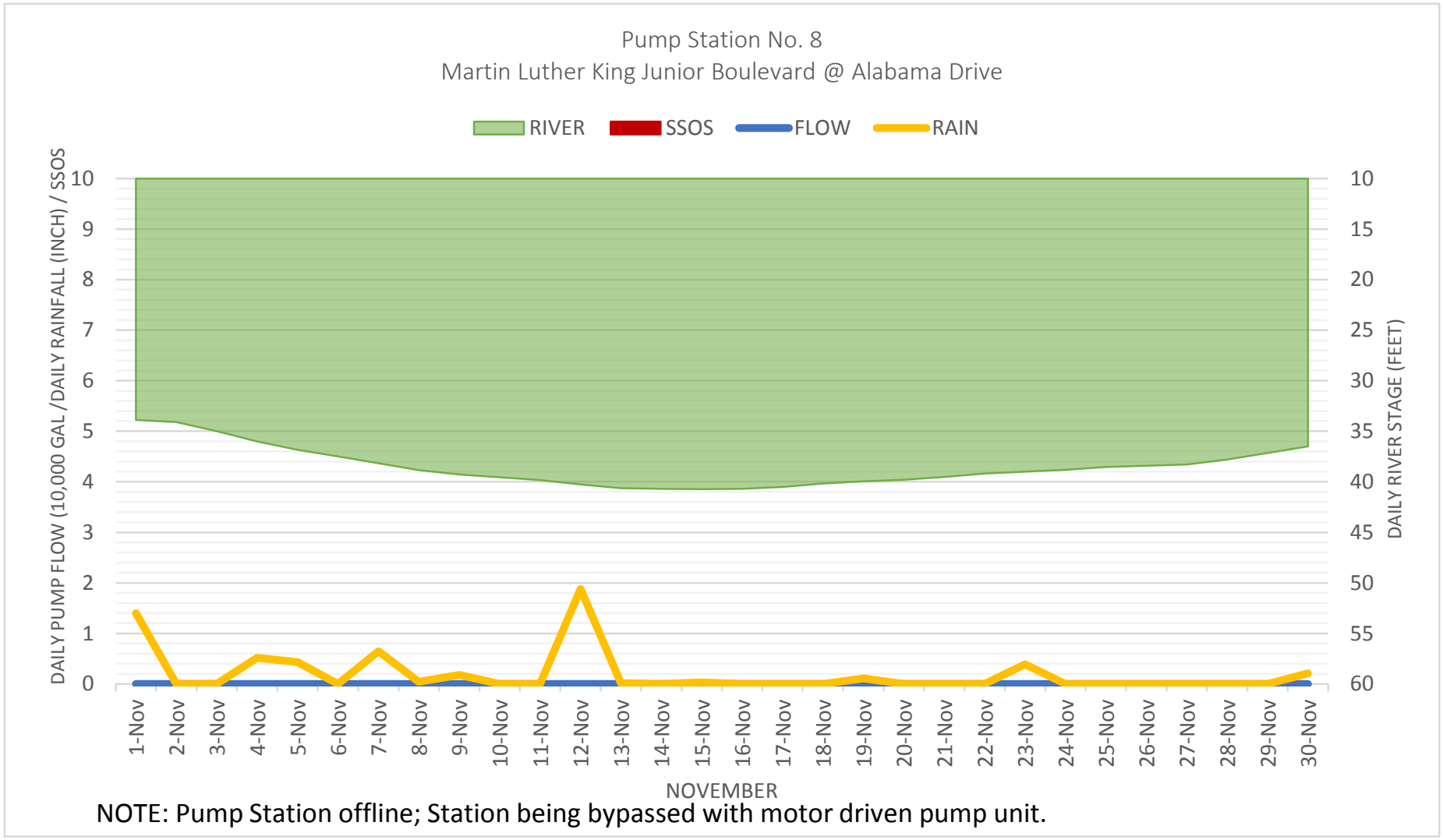
NOTE: Pump Station offline; Station being bypassed with motor driven pump unit.



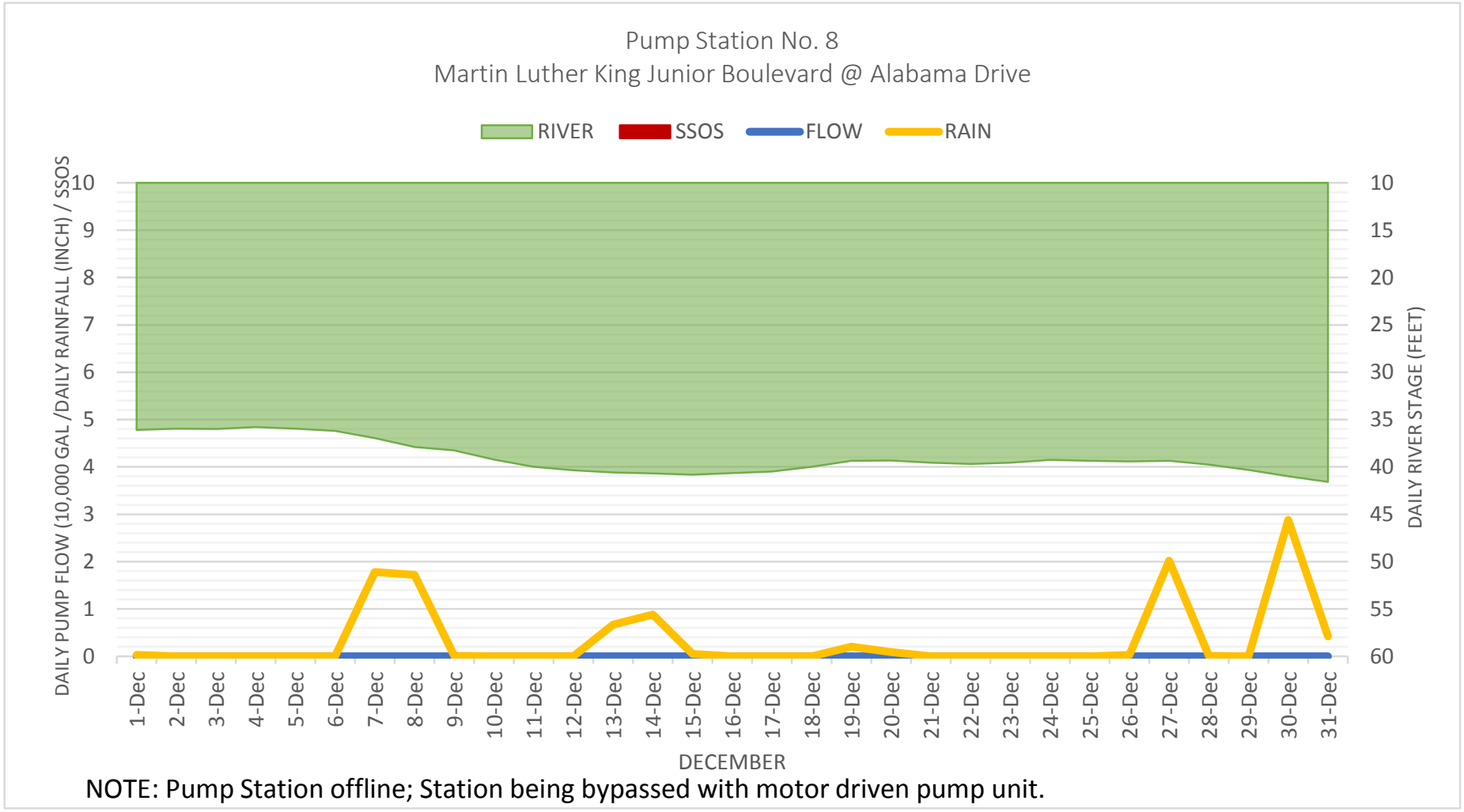
NOTE: Pump Station offline; Station being bypassed with motor driven pump unit.



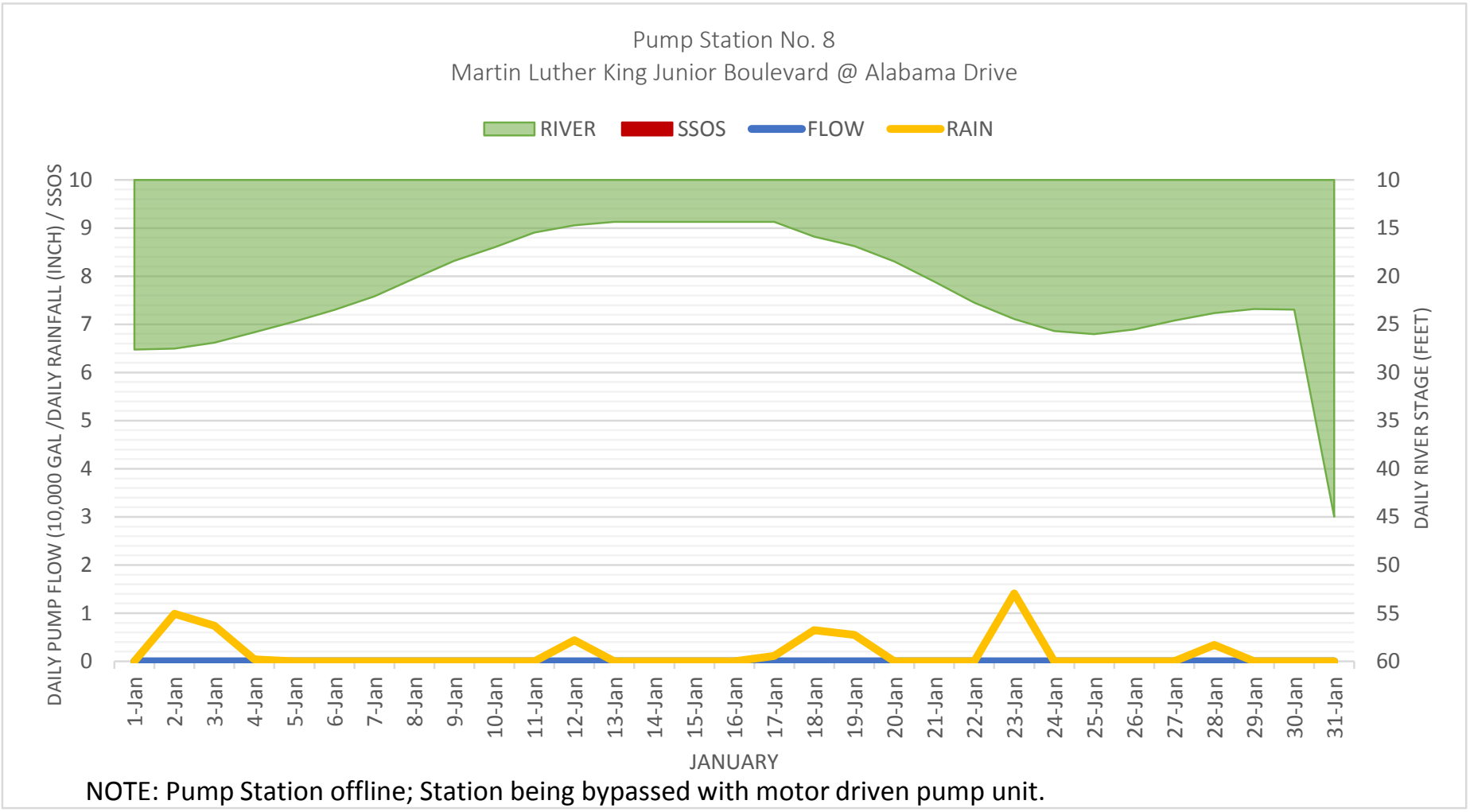
NOTE: Pump Station offline; Station being bypassed with motor driven pump unit.



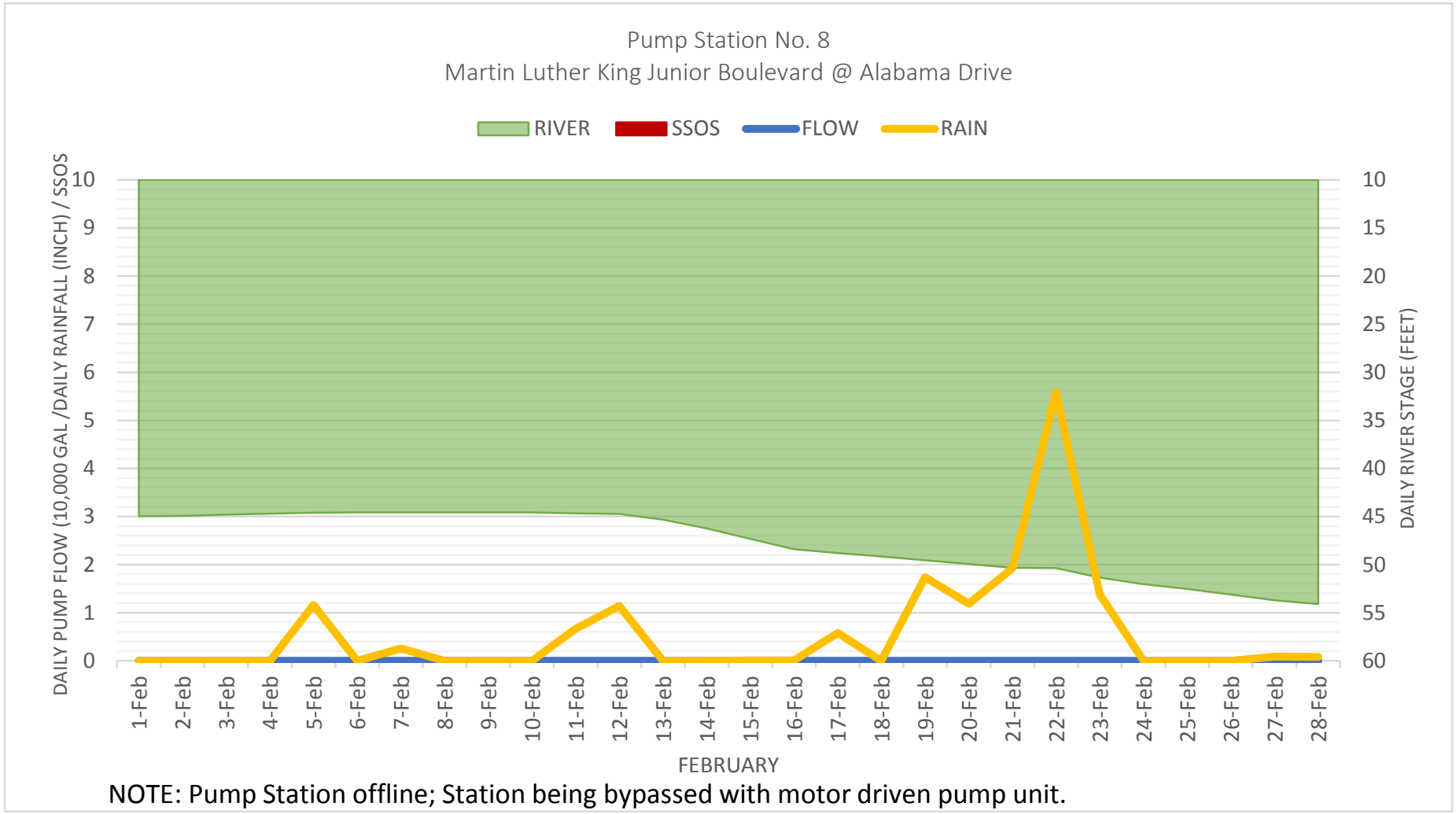
NOTE: Pump Station offline; Station being bypassed with motor driven pump unit.



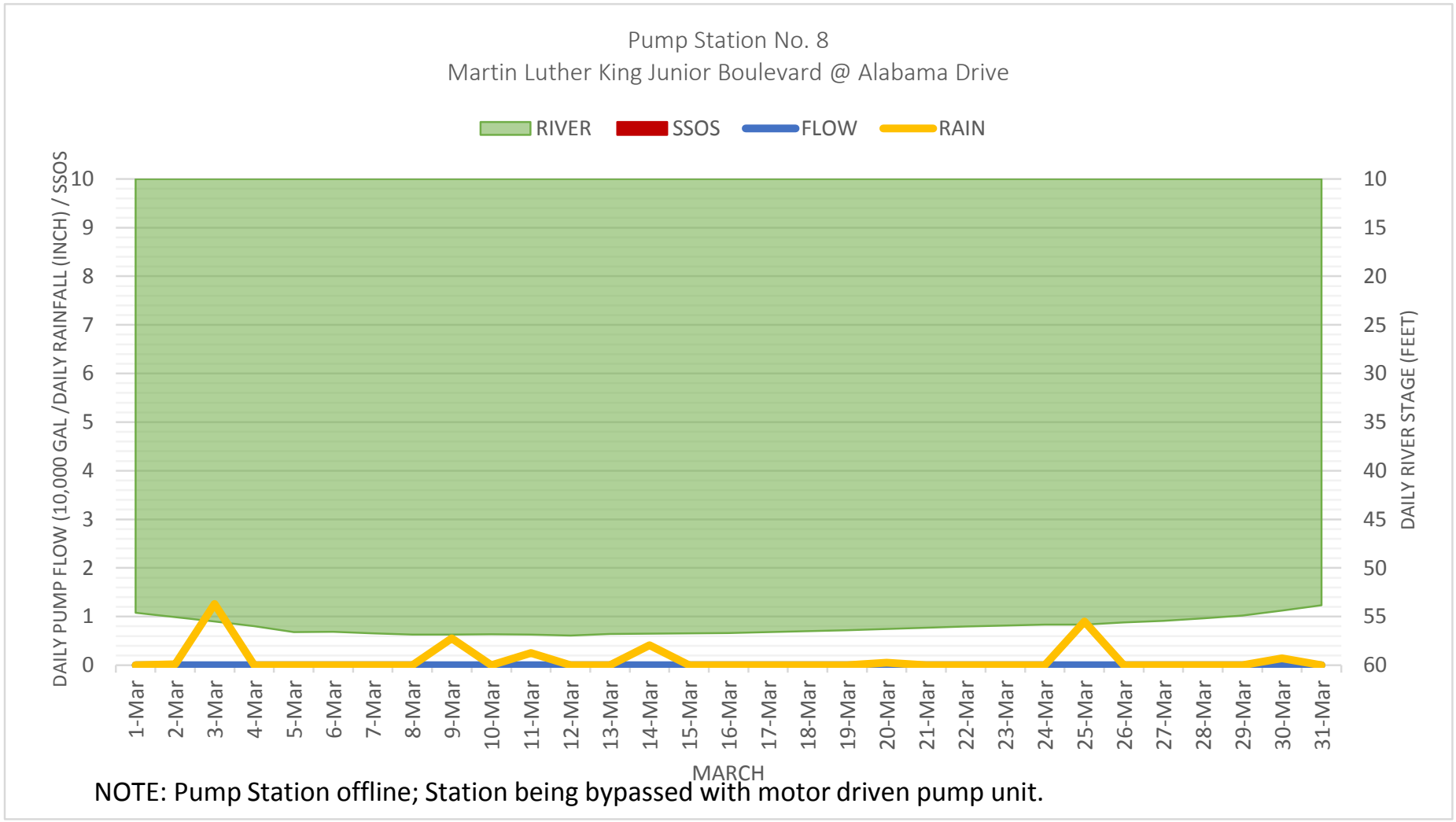
NOTE: Pump Station offline; Station being bypassed with motor driven pump unit.



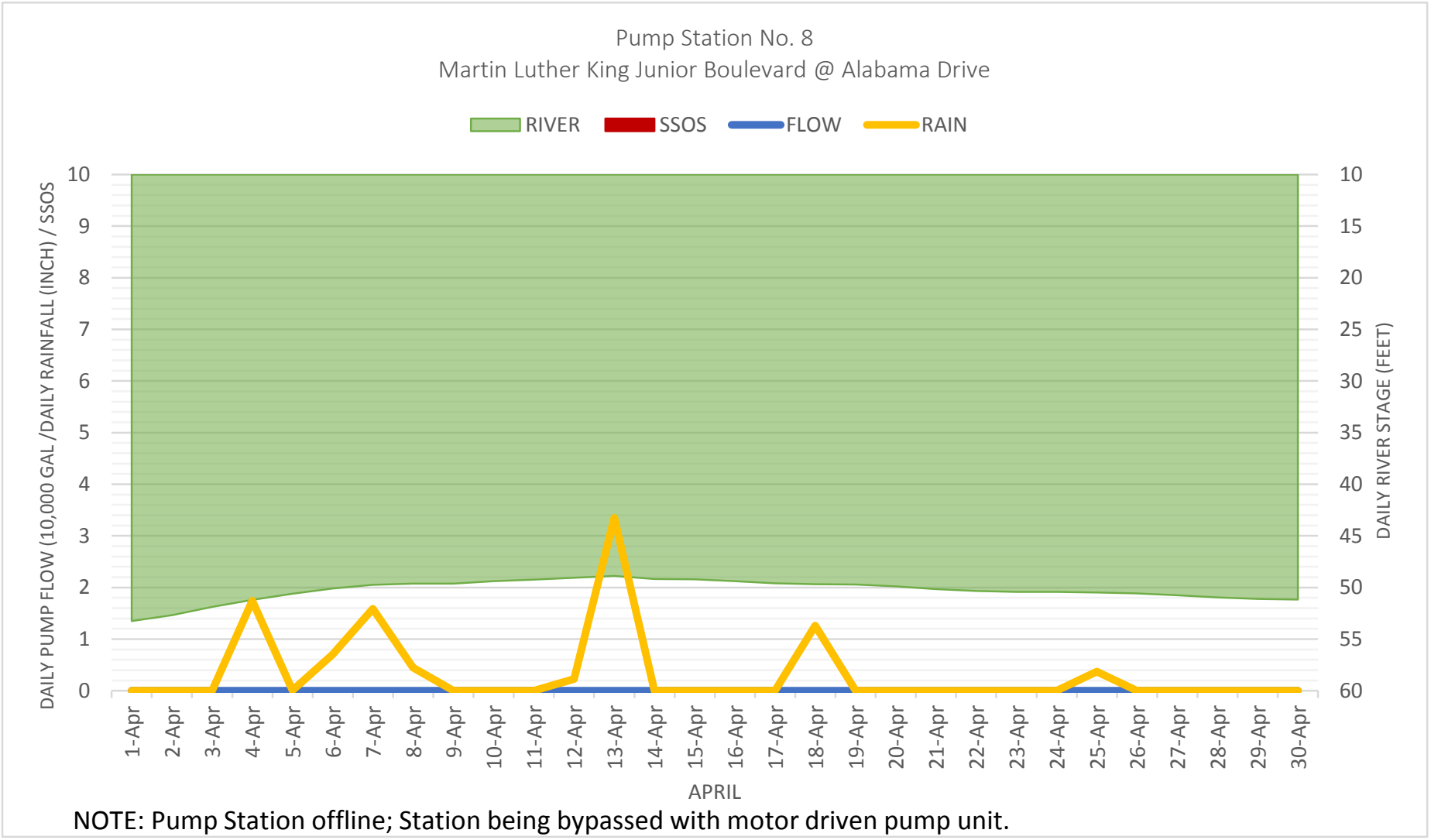
NOTE: Pump Station offline; Station being bypassed with motor driven pump unit.



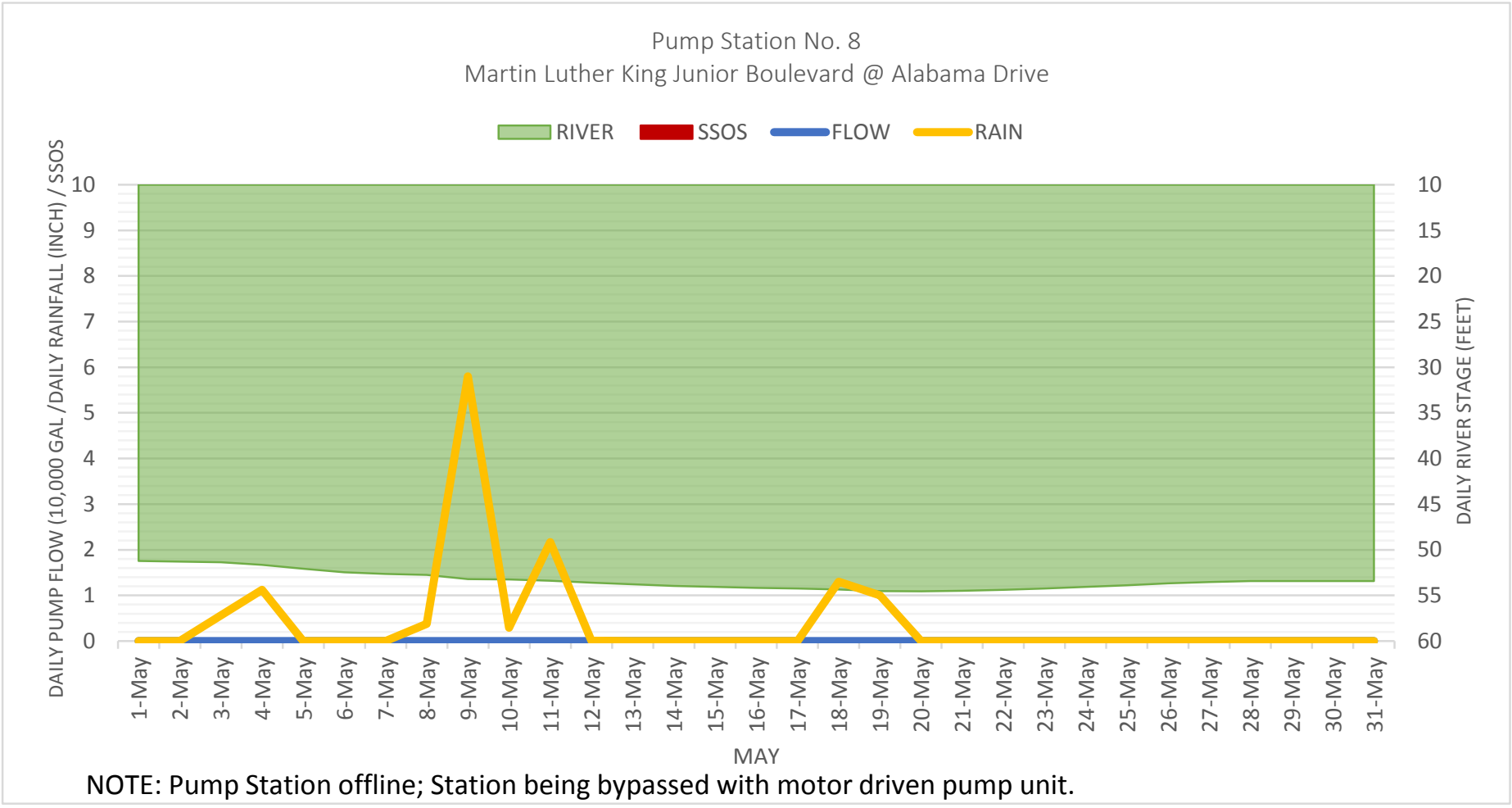
NOTE: Pump Station offline; Station being bypassed with motor driven pump unit.



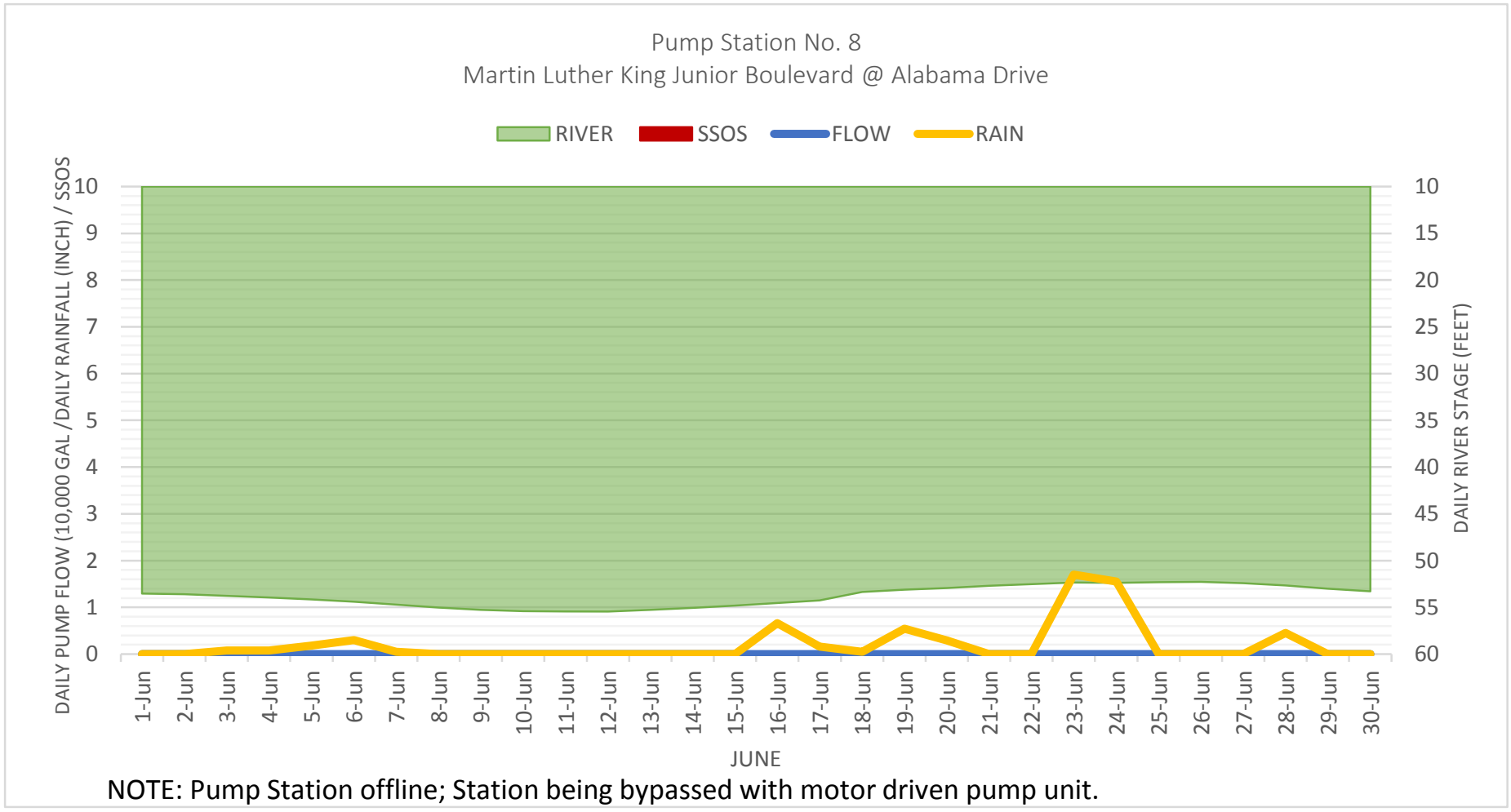
NOTE: Pump Station offline; Station being bypassed with motor driven pump unit.



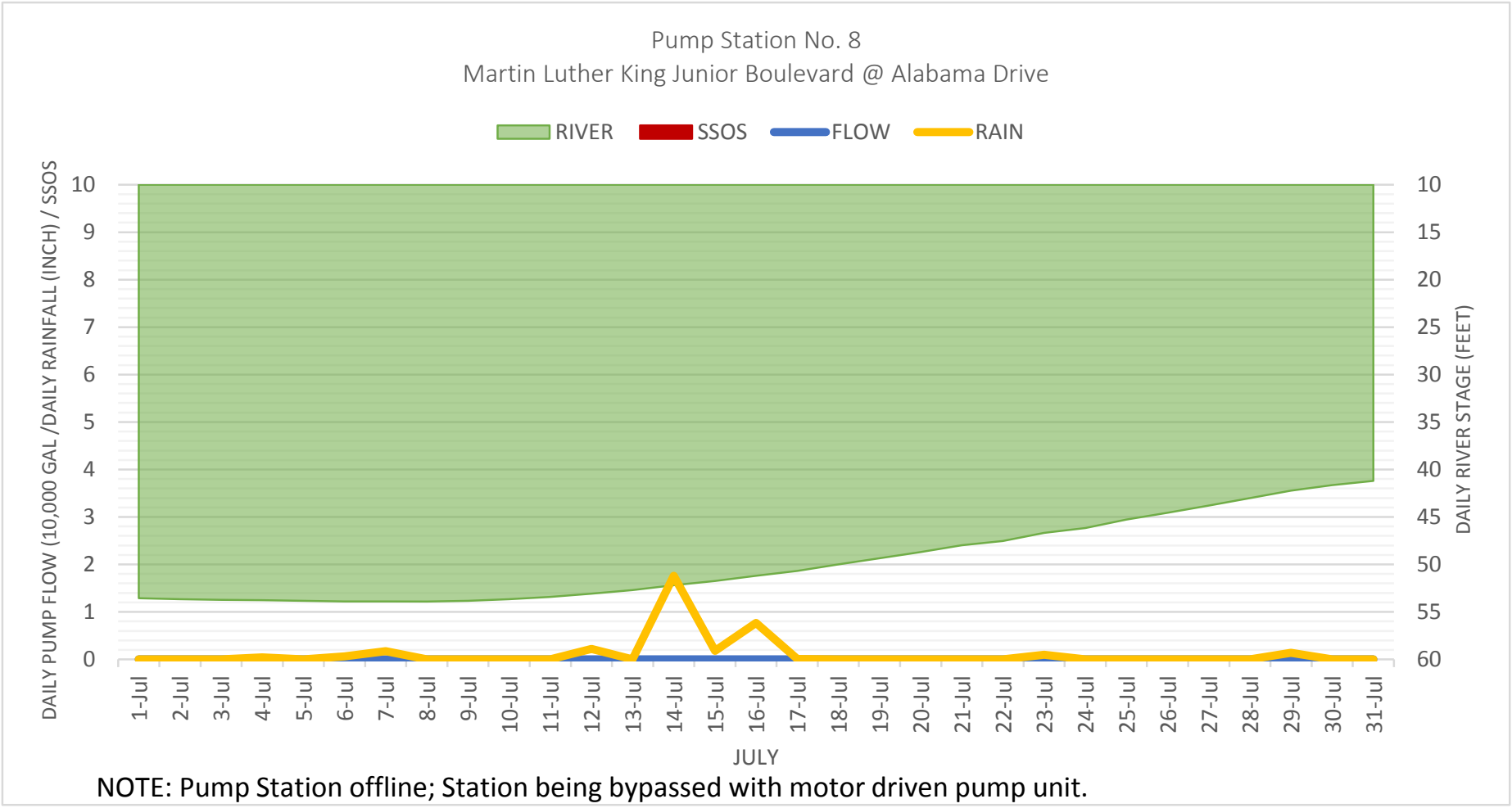
NOTE: Pump Station offline; Station being bypassed with motor driven pump unit.



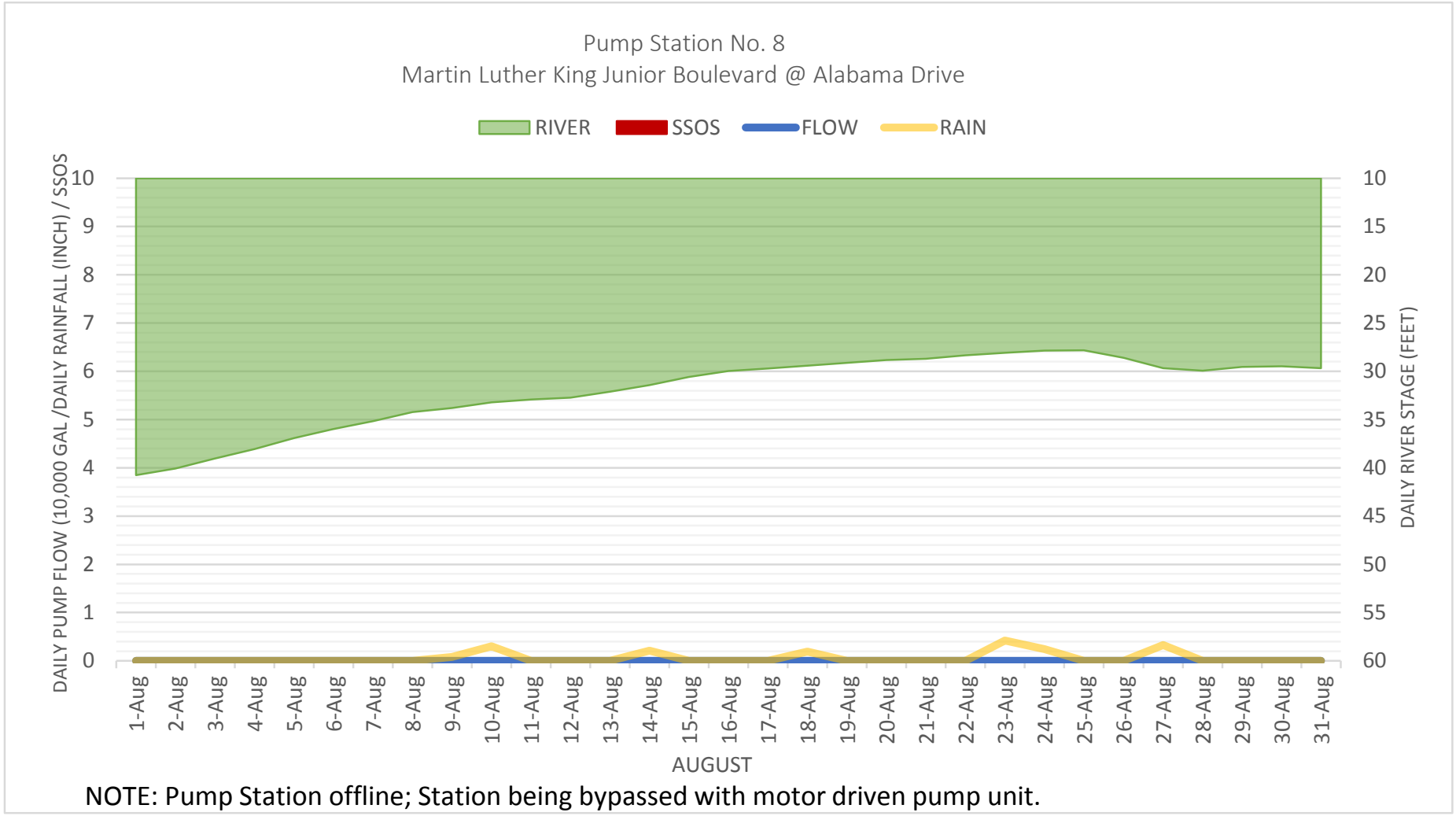
NOTE: Pump Station offline; Station being bypassed with motor driven pump unit.



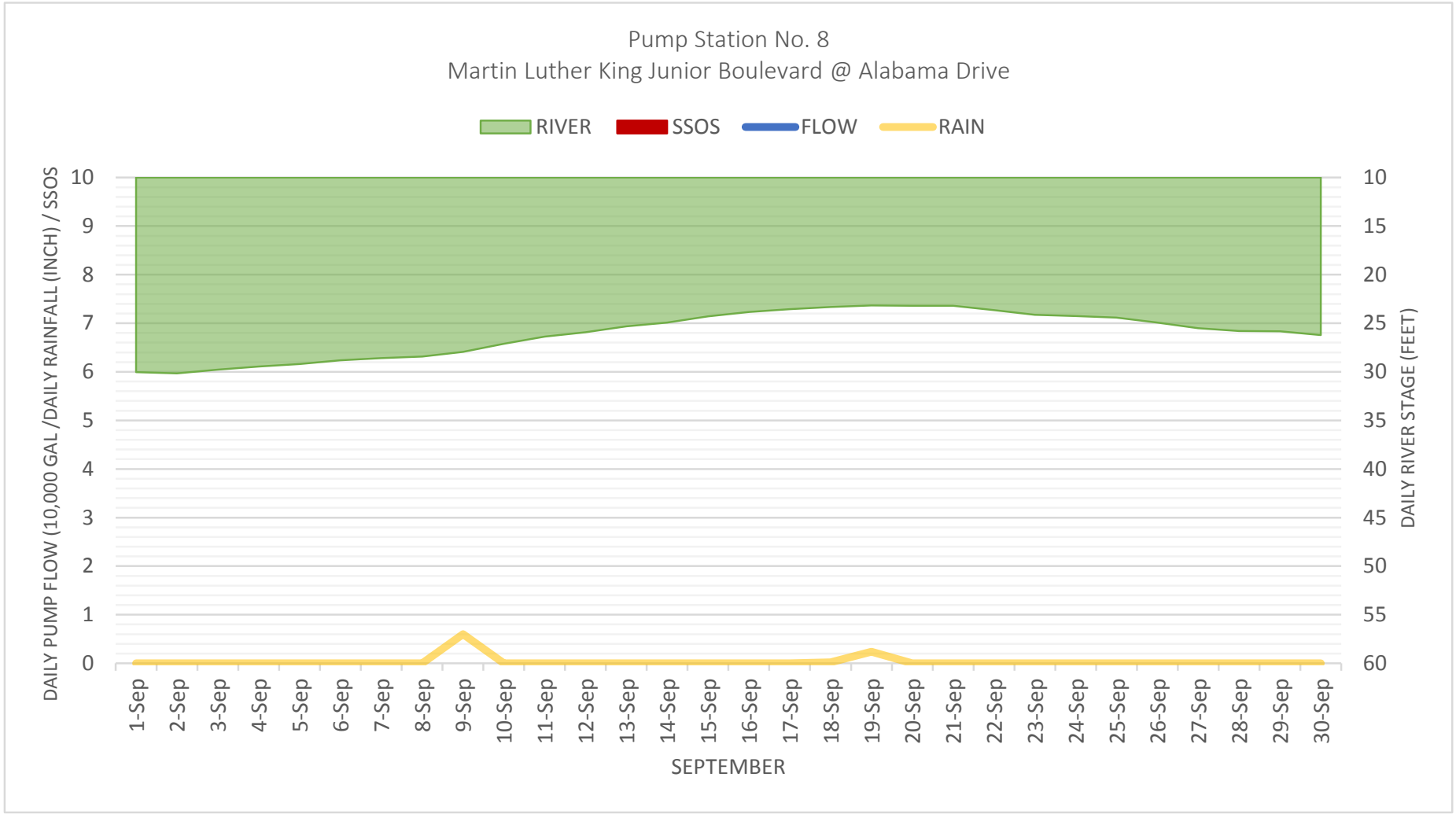
NOTE: Pump Station offline; Station being bypassed with motor driven pump unit.

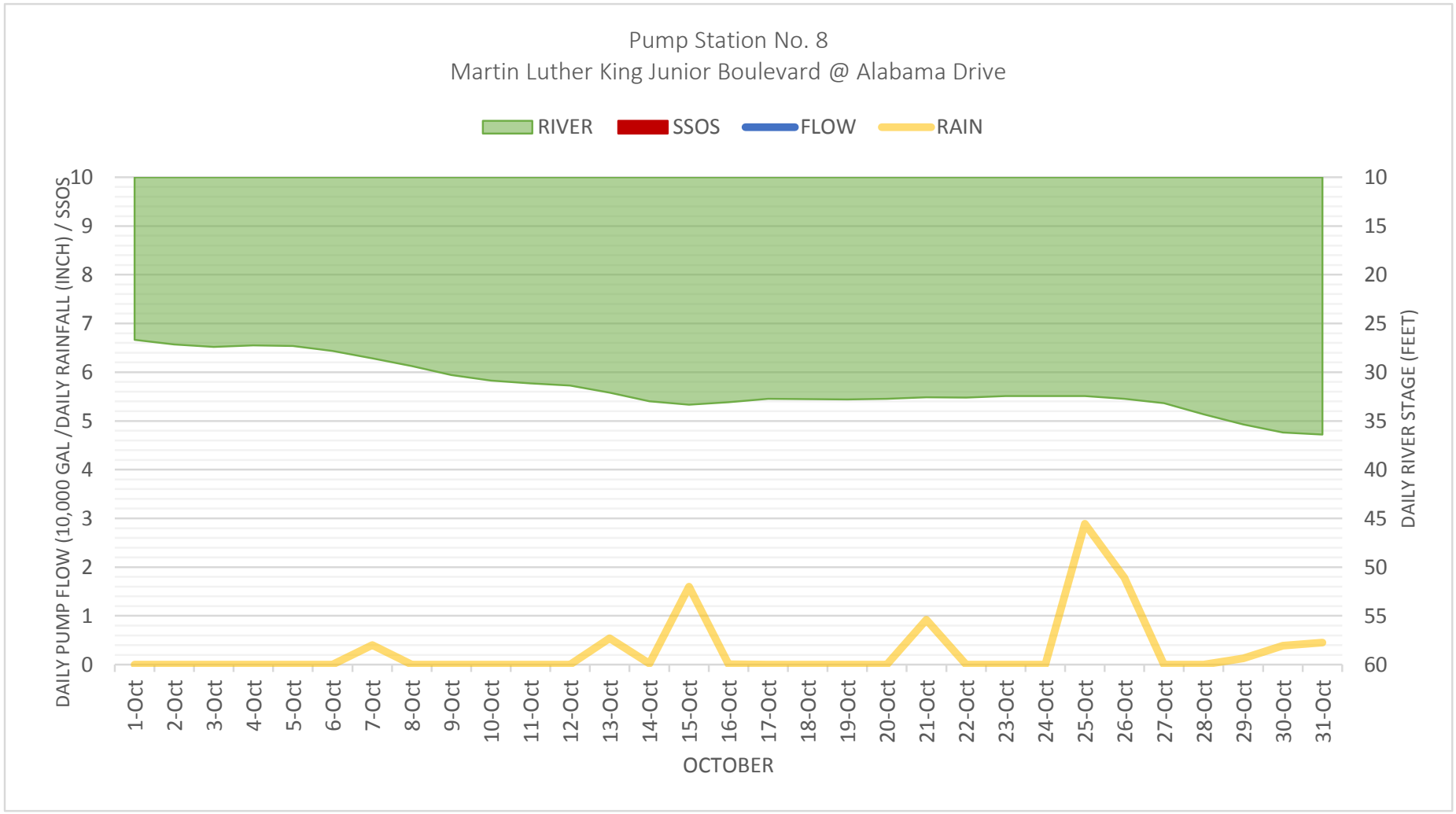


NOTE: Pump Station offline; Station being bypassed with motor driven pump unit.



NOTE: Pump Station offline; Station being bypassed with motor driven pump unit.


Pump Station No. 8
Martin Luther King Junior Boulevard @ Alabama Drive
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL /DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
10
9
8
7
6
5
4
3
2
1
0
10
15
20
25
30
35
40
45
50
55
60
1-Sep
2-Sep
3-Sep
4-Sep
5-Sep
6-Sep
7-Sep
8-Sep
9-Sep
10-Sep
11-Sep
12-Sep
13-Sep
14-Sep
15-Sep
16-Sep
17-Sep
18-Sep
19-Sep
20-Sep
21-Sep
22-Sep
23-Sep
24-Sep
25-Sep
26-Sep
27-Sep
28-Sep
29-Sep
30-Sep
SEPTEMBER


Pump Station No. 8
Martin Luther King Junior Boulevard @ Alabama Drive
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL /DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
0
1
2
3
4
5
6
7
8
9
10
10
15
20
25
30
35
40
45
50
55
60
1-Oct
2-Oct
3-Oct
4-Oct
5-Oct
6-Oct
7-Oct
8-Oct
9-Oct
10-Oct
11-Oct
12-Oct
13-Oct
14-Oct
15-Oct
16-Oct
17-Oct
18-Oct
19-Oct
20-Oct
21-Oct
22-Oct
23-Oct
24-Oct
25-Oct
26-Oct
27-Oct
28-Oct
29-Oct
30-Oct
31-Oct
OCTOBER

APPENDIX 25

MS17/PS9 I/I WORKSHEET

MS17/PS9
INFLOW & INFILTRATION WORKSHEET

Infiltration

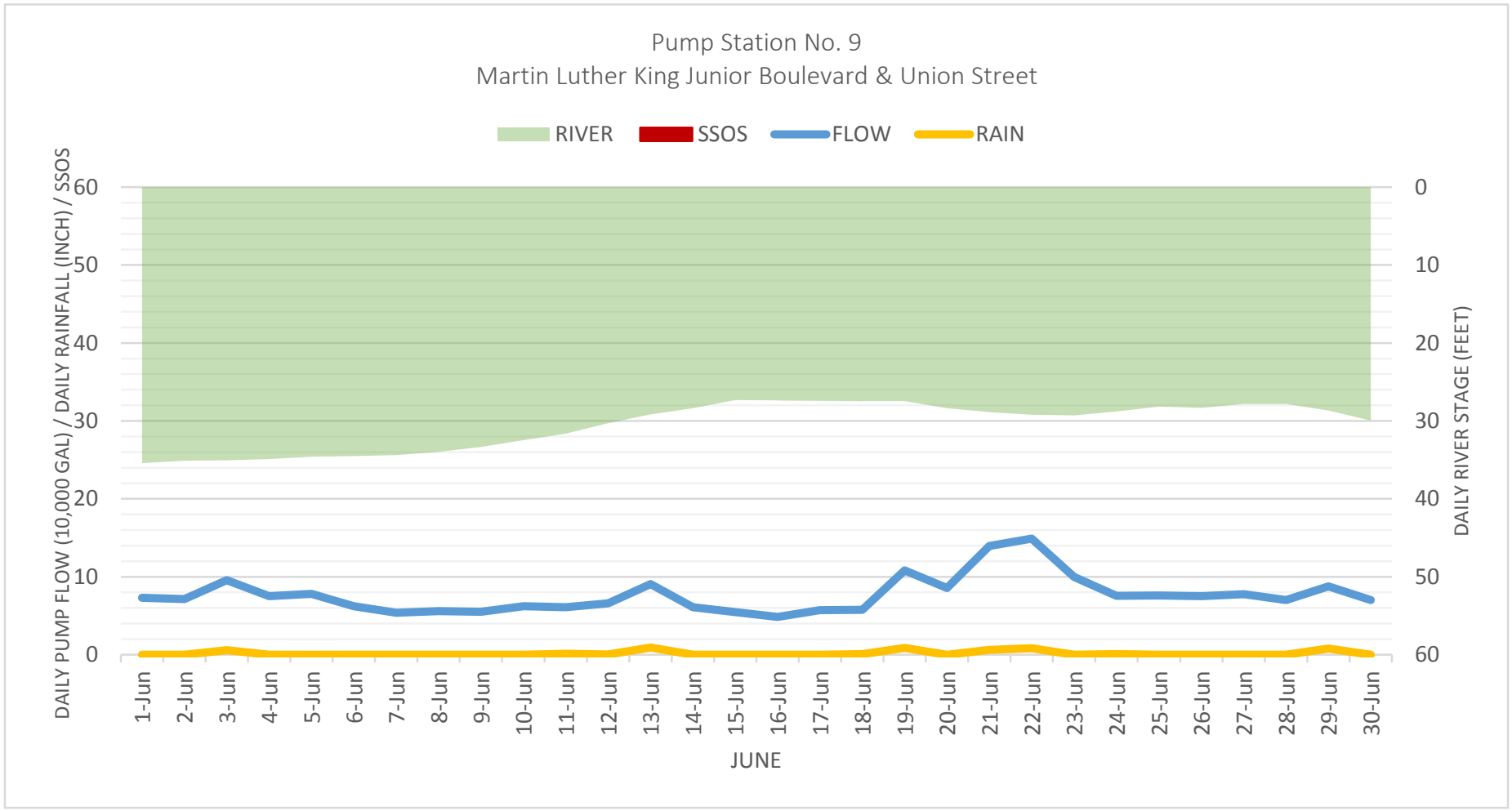
	feet	miles	diameter	inch-miles	
10" Gravity	2153	0.407765152	10.00	4.077652	
8" Gravity	13129	2.49	8	19.89242	
Laterals	9420	1.78	4	7.136364	
TOTAL PIPE	22549			**31.10644**	**total inch-miles in system**
		maximum average infiltration	inch-miles		
		83,071.4286	31.11	**2670.554**	**total gpd/idm**

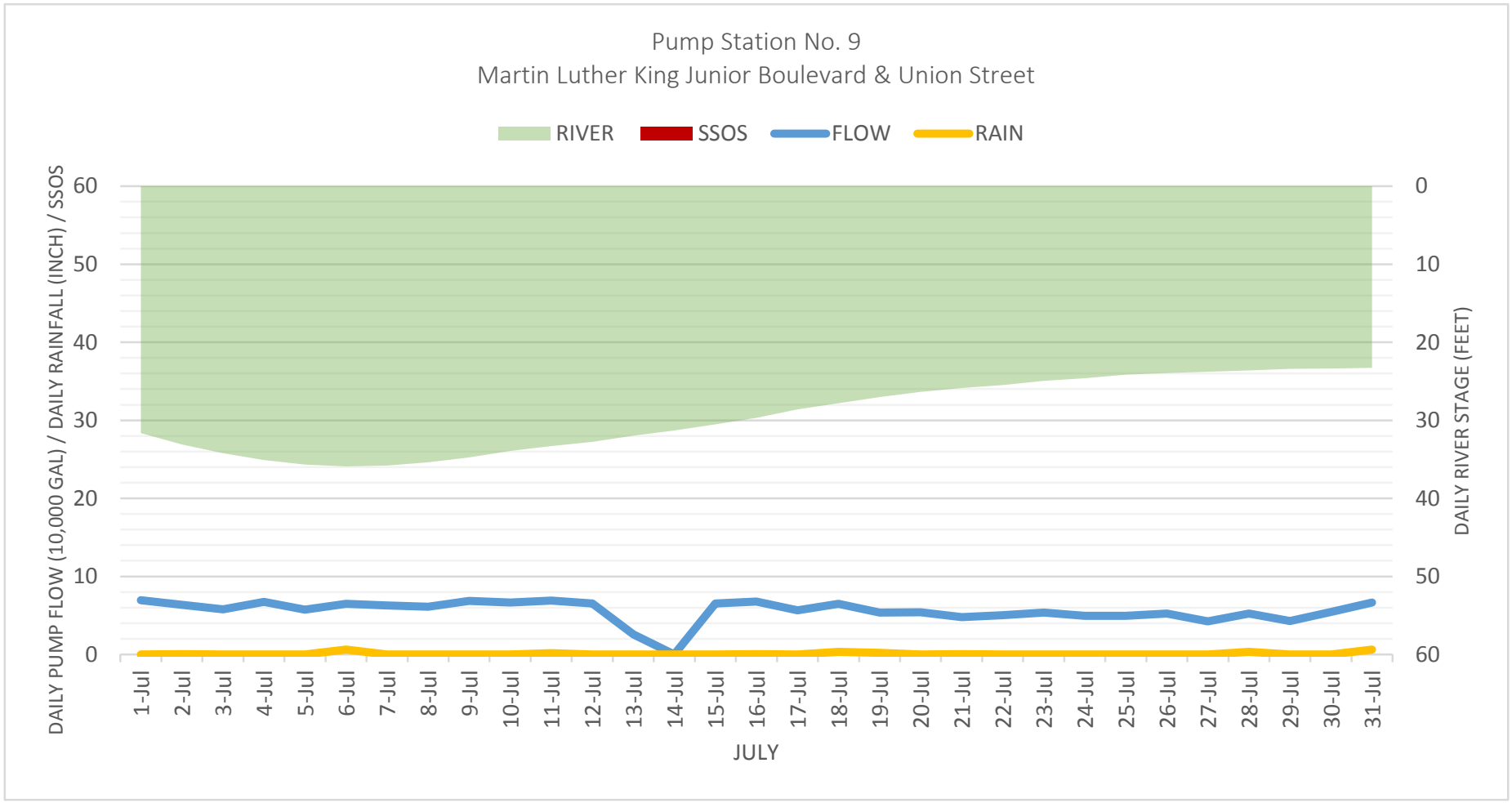
Inflow

	feet	miles	diameter	inch-miles	
10" Gravity	2153	0.41	10.00	4.077652	
8" Gravity	13129	2.49	8.00	19.89242	
Laterals	9420	1.78	4.00	7.136364	
total pipe	22549			**31.10644**	**total inch-miles in system**
		maximum average inflow	inch-miles		
		138,857.1429	31.11	**4463.936**	**total gpd/idm**

APPENDIX 26

MS17/PS9 GRAPHS


Pump Station No. 9
Martin Luther King Junior Boulevard & Union Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
0
10
20
30
40
50
60
1-Jun
2-Jun
3-Jun
4-Jun
5-Jun
6-Jun
7-Jun
8-Jun
9-Jun
10-Jun
11-Jun
12-Jun
13-Jun
14-Jun
15-Jun
16-Jun
17-Jun
18-Jun
19-Jun
20-Jun
21-Jun
22-Jun
23-Jun
24-Jun
25-Jun
26-Jun
27-Jun
28-Jun
29-Jun
30-Jun
JUNE


Pump Station No. 9
Martin Luther King Junior Boulevard & Union Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
60
50
40
30
20
10
0
0
10
20
30
40
50
60
1-Jul
2-Jul
3-Jul
4-Jul
5-Jul
6-Jul
7-Jul
8-Jul
9-Jul
10-Jul
11-Jul
12-Jul
13-Jul
14-Jul
15-Jul
16-Jul
17-Jul
18-Jul
19-Jul
20-Jul
21-Jul
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25-Jul
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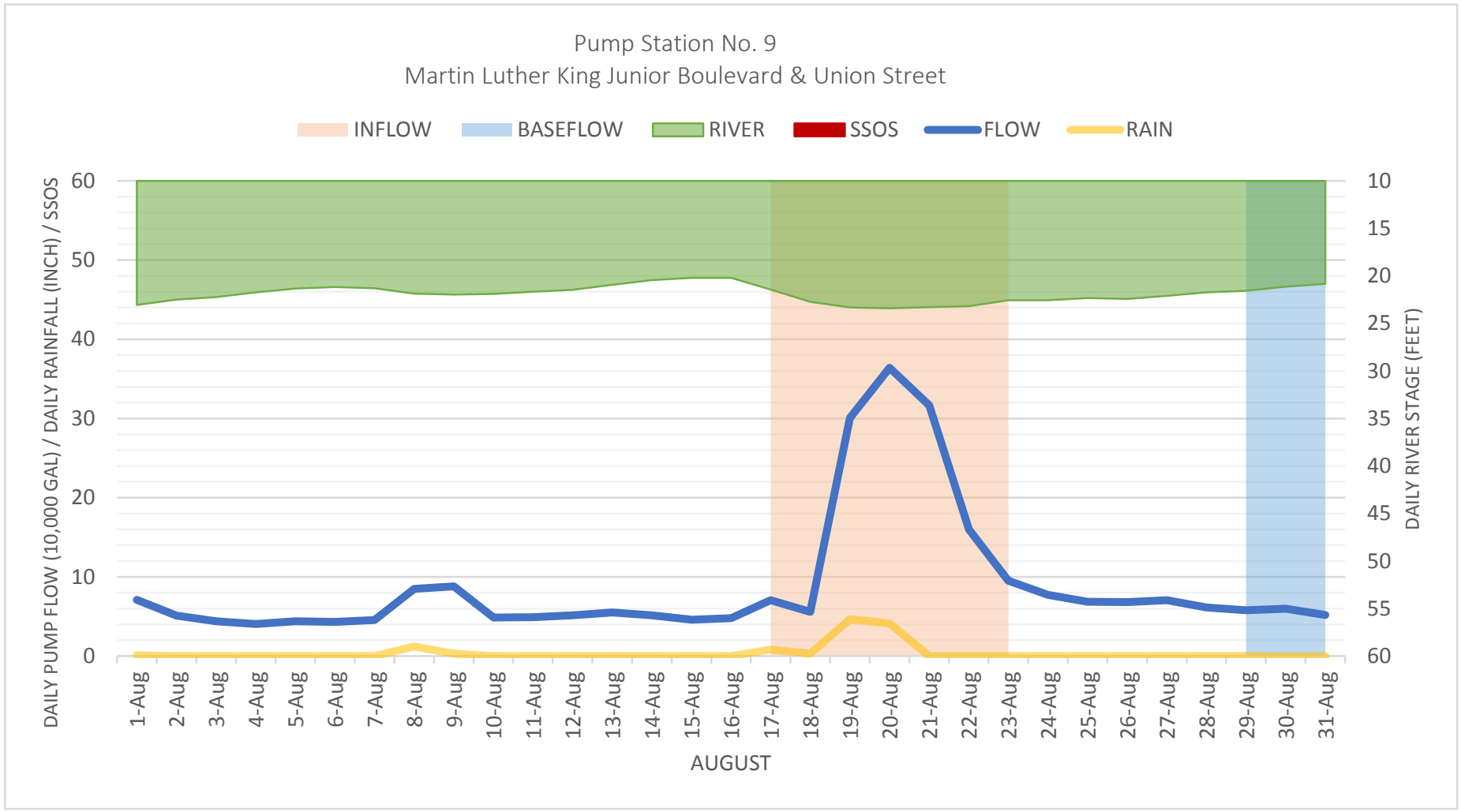
28-Jul
29-Jul
30-Jul
31-Jul
JULY


Pump Station No. 9
Martin Luther King Junior Boulevard & Union Street
INFLOW
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
60
50
40
30
20
10
0
10
15
20
25
30
35
40
45
50
55
60
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
13-Aug
14-Aug
15-Aug
16-Aug
17-Aug
18-Aug
19-Aug
20-Aug
21-Aug
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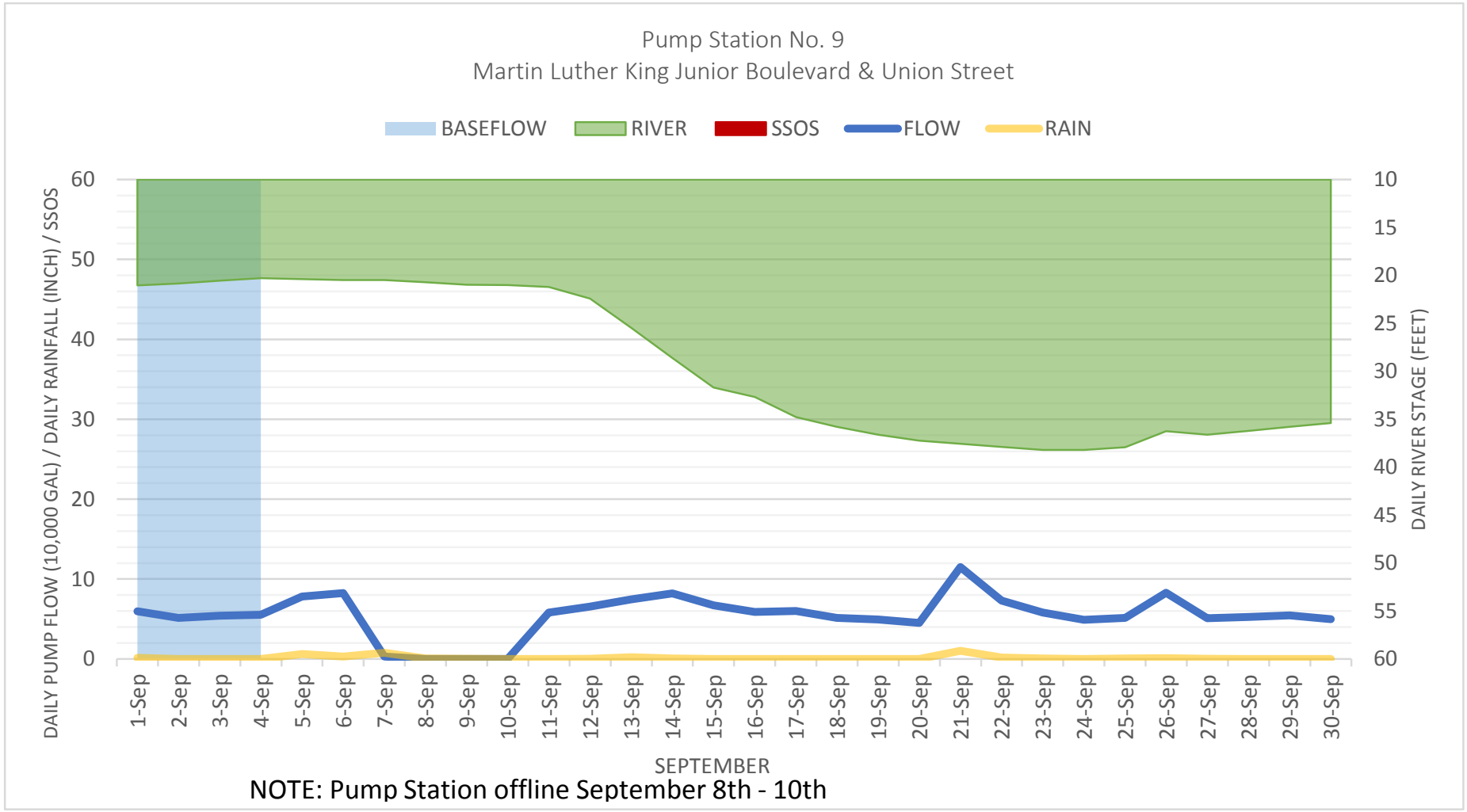
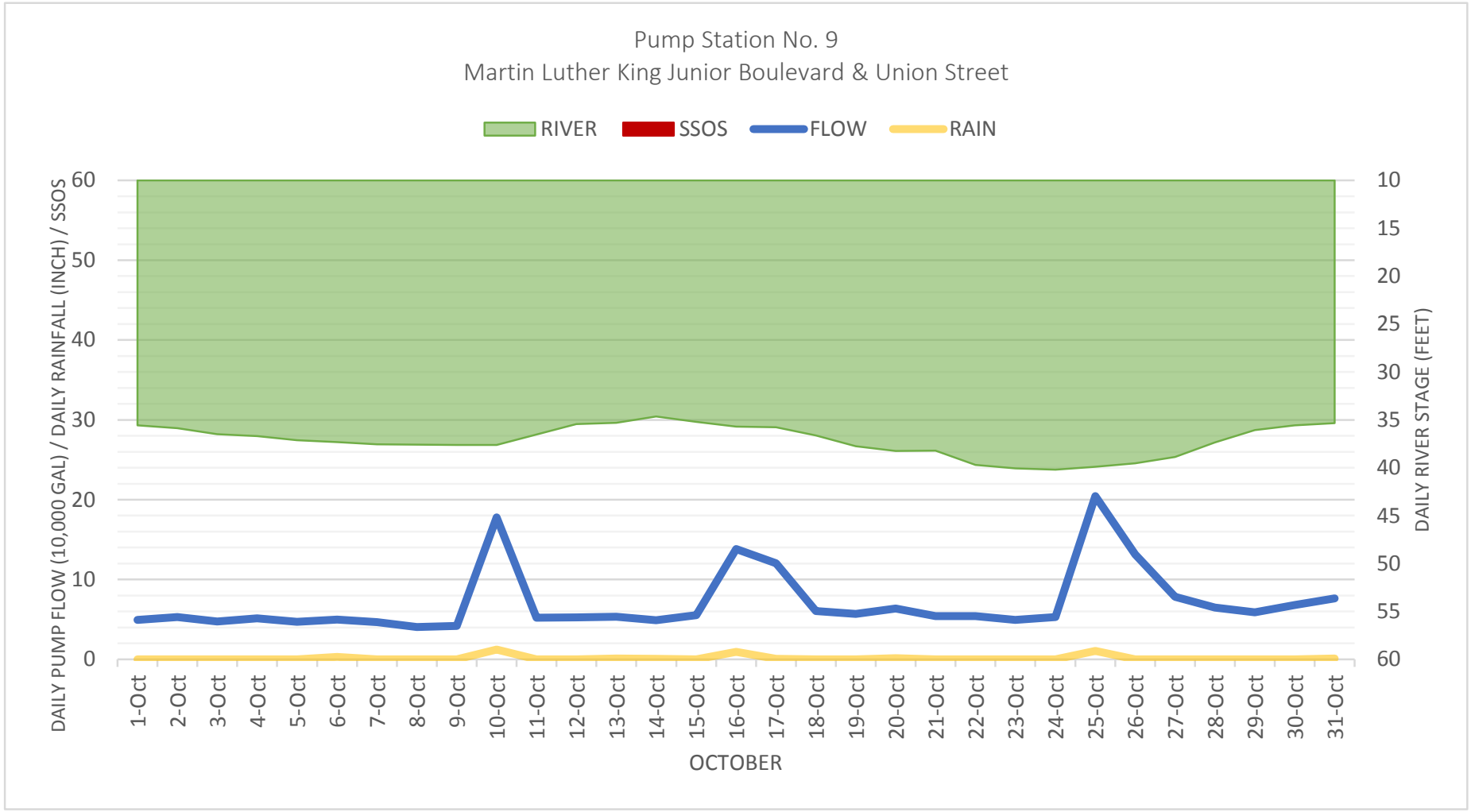
27-Aug
28-Aug
29-Aug
30-Aug
31-Aug
AUGUST



NOTE: Pump Station offline September 8th - 10th


Pump Station No. 9
Martin Luther King Junior Boulevard & Union Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
60
50
40
30
20
10
0
10
15
20
25
30
35
40
45
50
55
60
1-Oct
2-Oct
3-Oct
4-Oct
5-Oct
6-Oct
7-Oct
8-Oct
9-Oct
10-Oct
11-Oct
12-Oct
13-Oct
14-Oct
15-Oct
16-Oct
17-Oct
18-Oct
19-Oct
20-Oct
21-Oct
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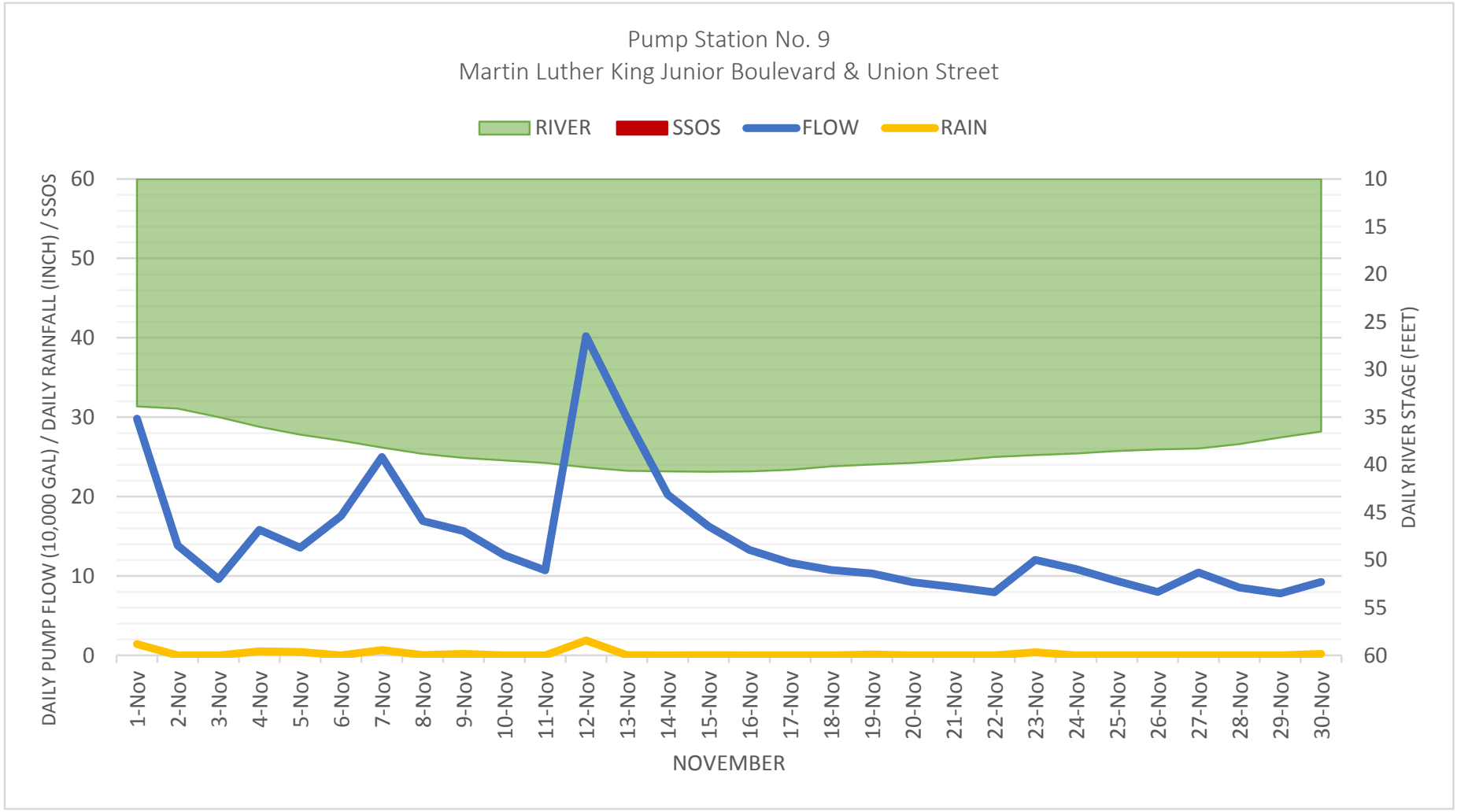
23-Oct
24-Oct
25-Oct
26-Oct
27-Oct
28-Oct
29-Oct
30-Oct
31-Oct
OCTOBER


Pump Station No. 9
Martin Luther King Junior Boulevard & Union Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
60
50
40
30
20
10
0
10
15
20
25
30
35
40
45
50
55
60
1-Nov
2-Nov
3-Nov
4-Nov
5-Nov
6-Nov
7-Nov
8-Nov
9-Nov
10-Nov
11-Nov
12-Nov
13-Nov
14-Nov
15-Nov
16-Nov
17-Nov
18-Nov
19-Nov
20-Nov
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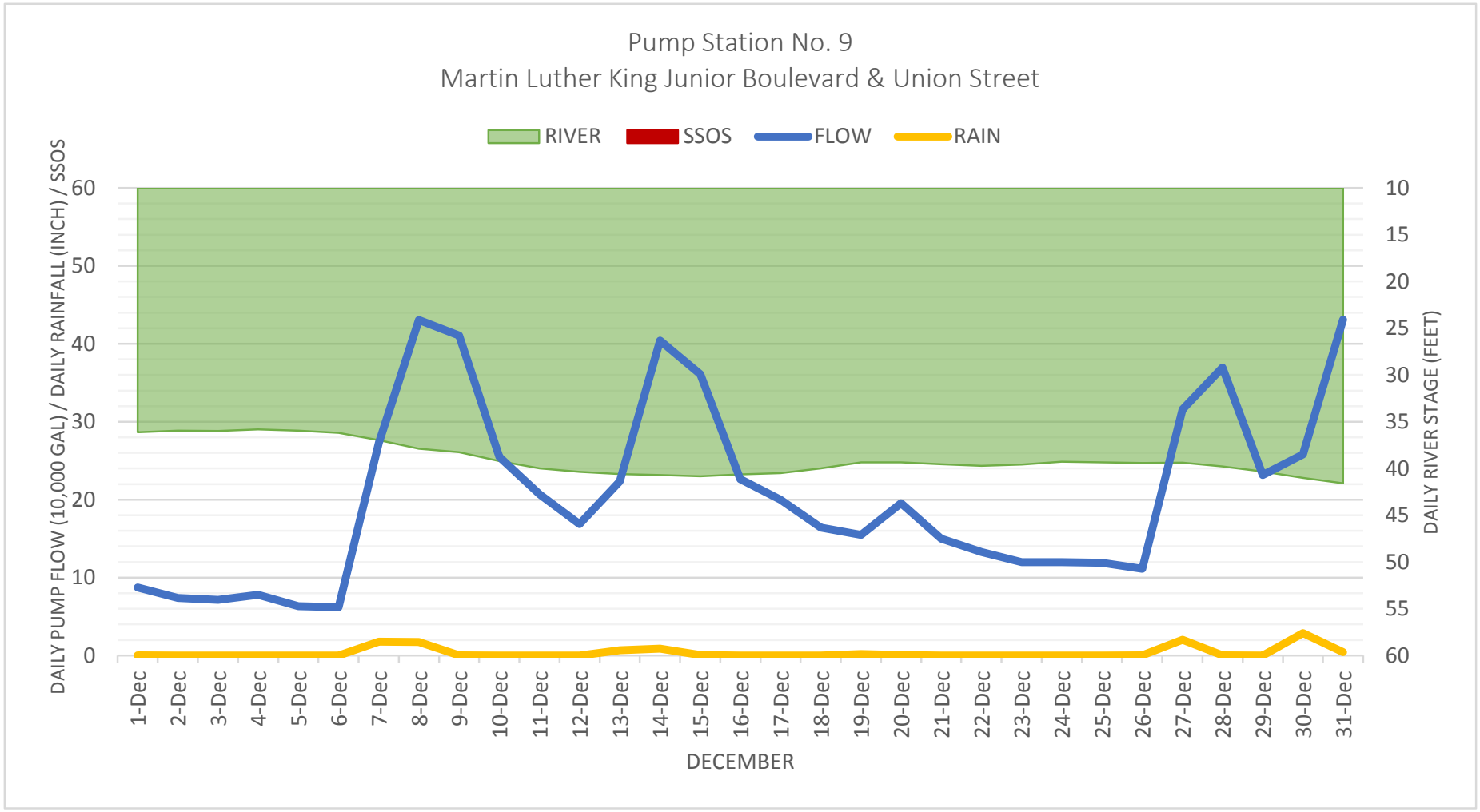
23-Nov
24-Nov
25-Nov
26-Nov
27-Nov
28-Nov
29-Nov
30-Nov
NOVEMBER


Pump Station No. 9
Martin Luther King Junior Boulevard & Union Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
0
10
20
30
40
50
60
10
15
20
25
30
35
40
45
50
55
60
1-Dec
2-Dec
3-Dec
4-Dec
5-Dec
6-Dec
7-Dec
8-Dec
9-Dec
10-Dec
11-Dec
12-Dec
13-Dec
14-Dec
15-Dec
16-Dec
17-Dec
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19-Dec
20-Dec
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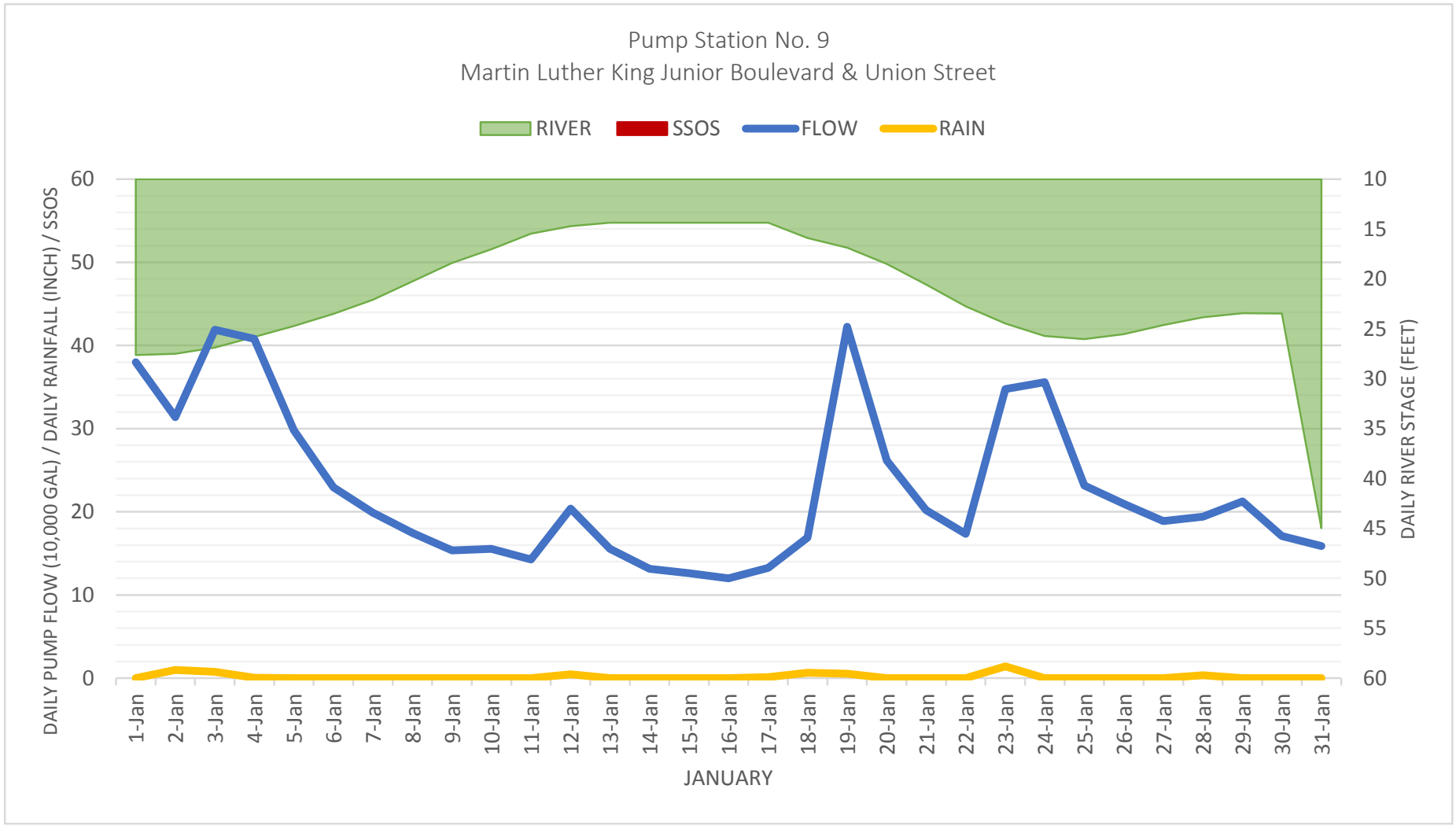
24-Dec
25-Dec
26-Dec
27-Dec
28-Dec
29-Dec
30-Dec
31-Dec
DECEMBER


Pump Station No. 9
Martin Luther King Junior Boulevard & Union Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
60
50
40
30
20
10
0
10
15
20
25
30
35
40
45
50
55
60
1-Jan
2-Jan
3-Jan
4-Jan
5-Jan
6-Jan
7-Jan
8-Jan
9-Jan
10-Jan
11-Jan
12-Jan
13-Jan
14-Jan
15-Jan
16-Jan
17-Jan
18-Jan
19-Jan
20-Jan
21-Jan
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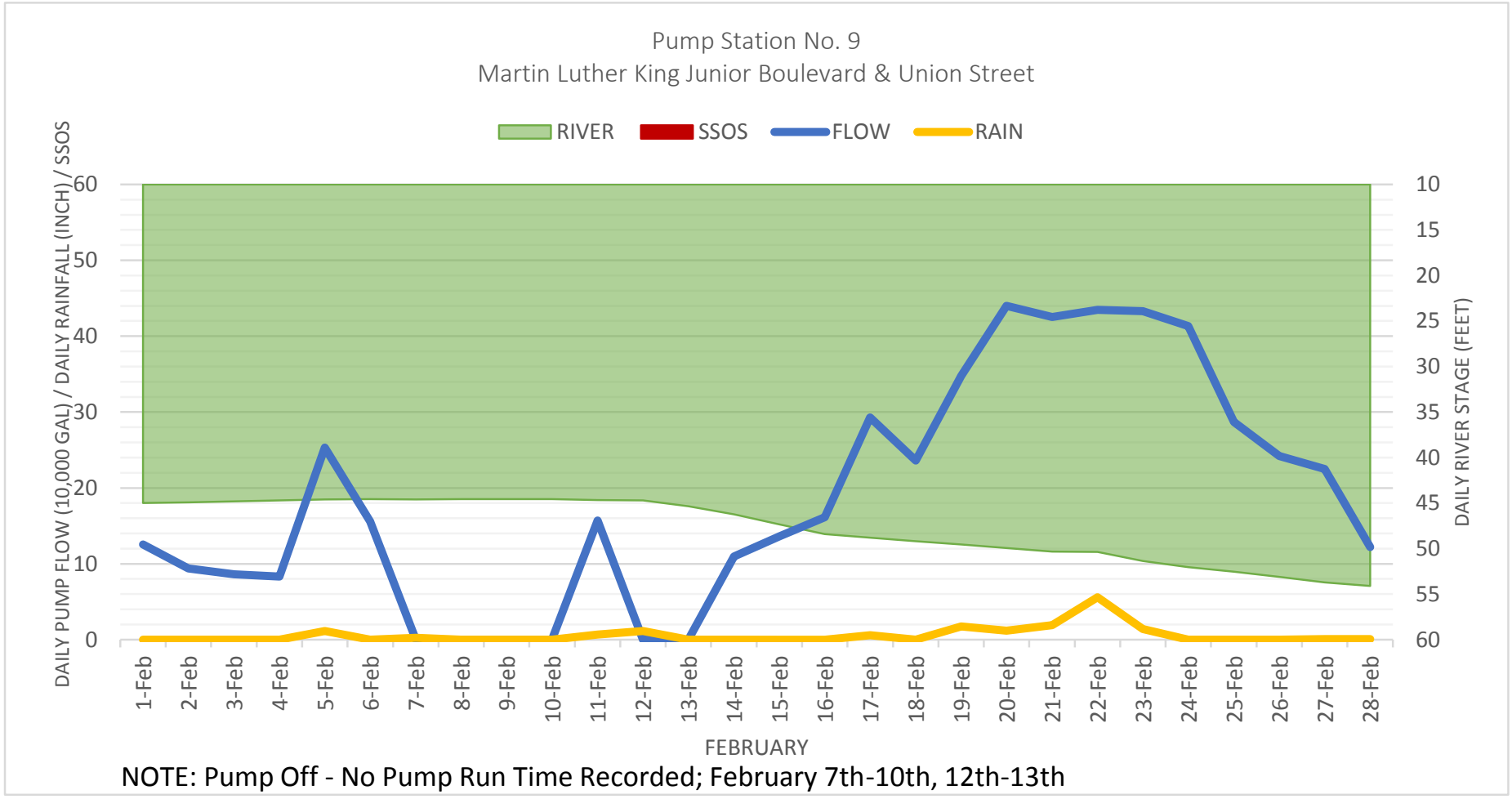
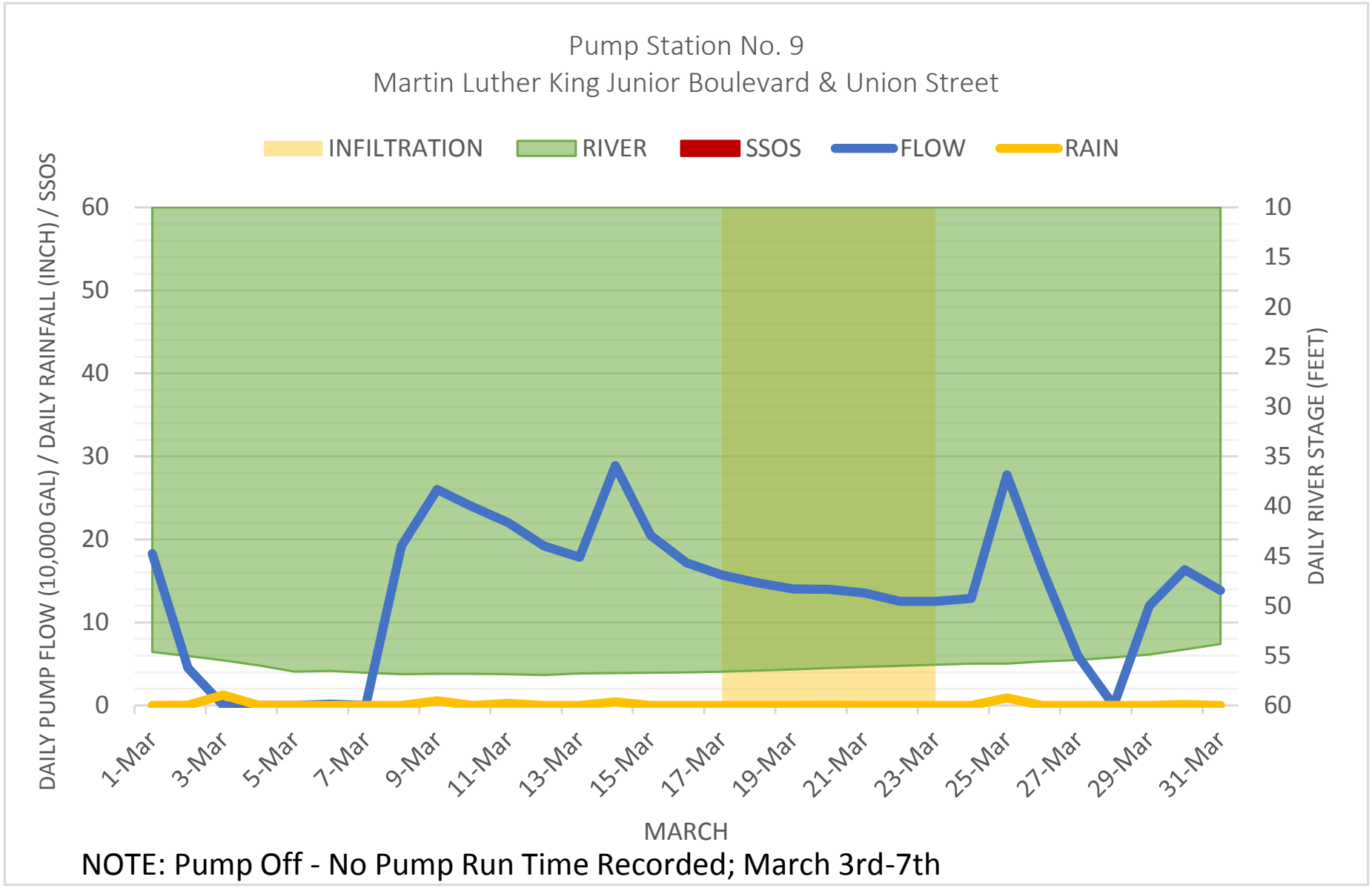
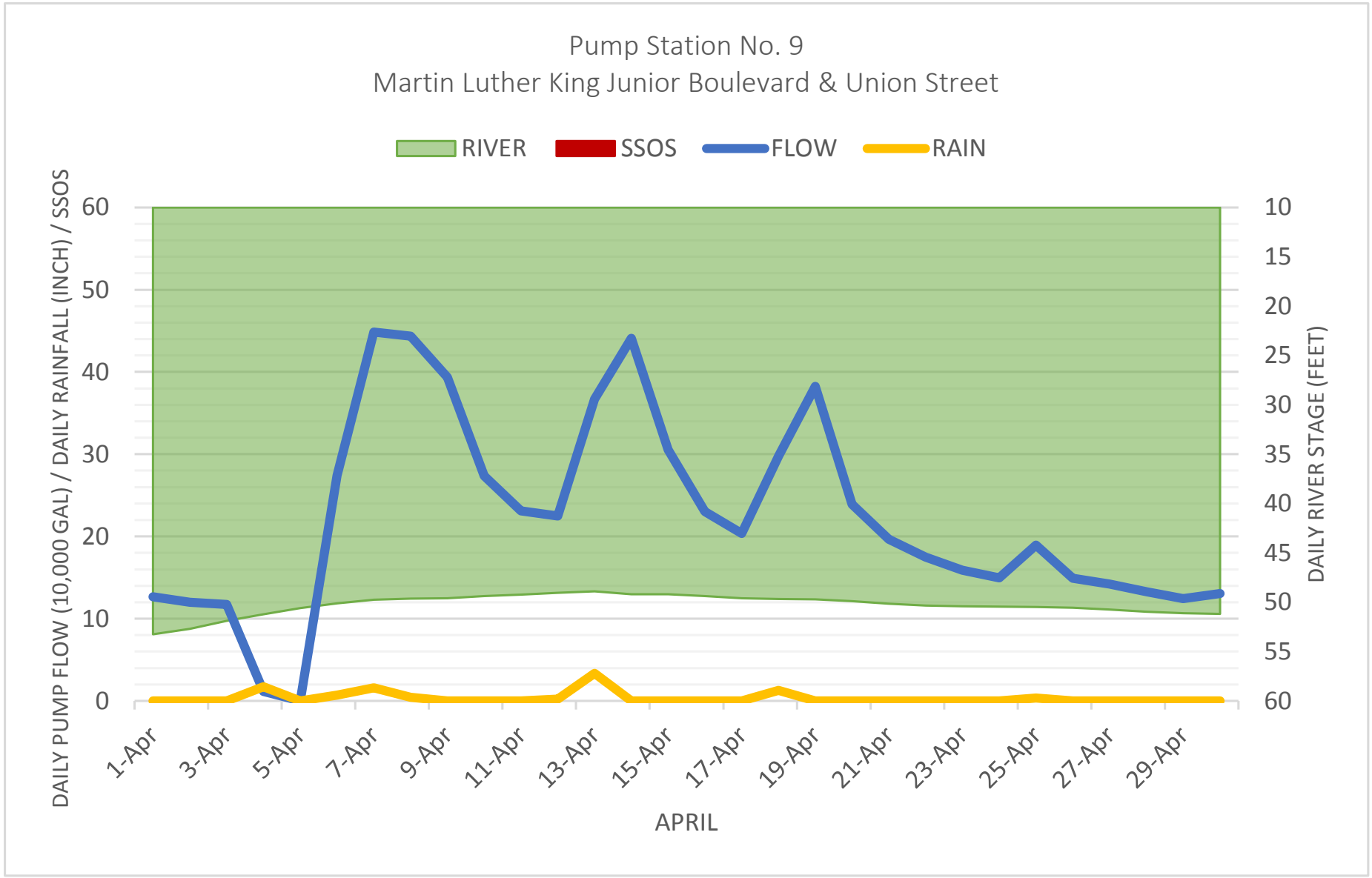
26-Jan
27-Jan
28-Jan
29-Jan
30-Jan
31-Jan
JANUARY



NOTE: Pump Off - No Pump Run Time Recorded; February 7th-10th, 12th-13th



NOTE: Pump Off - No Pump Run Time Recorded; March 3rd-7th


Pump Station No. 9
Martin Luther King Junior Boulevard & Union Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
60
50
40
30
20
10
0
10
15
20
25
30
35
40
45
50
55
60
1-Apr
3-Apr
5-Apr
7-Apr
9-Apr
11-Apr
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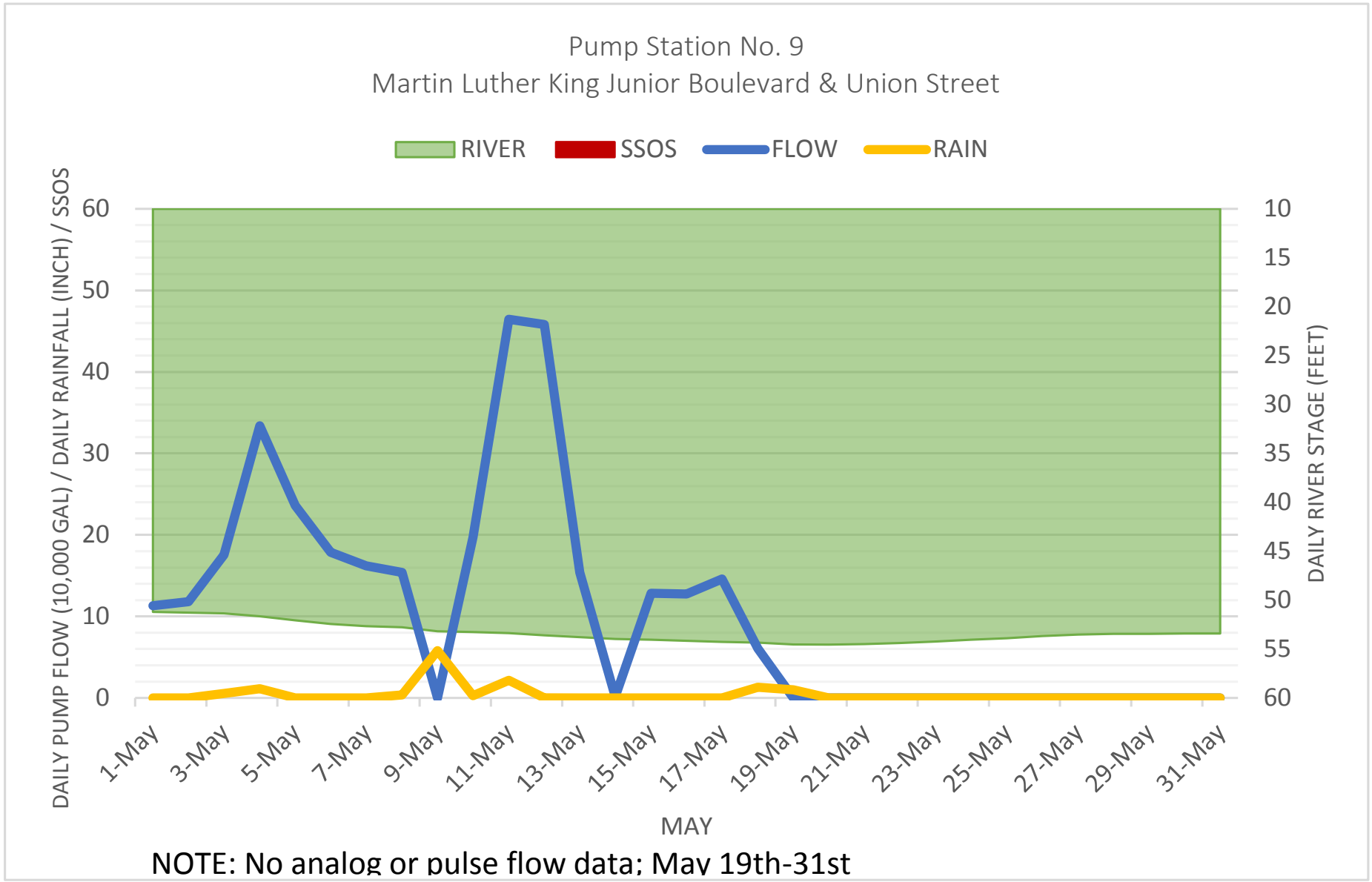
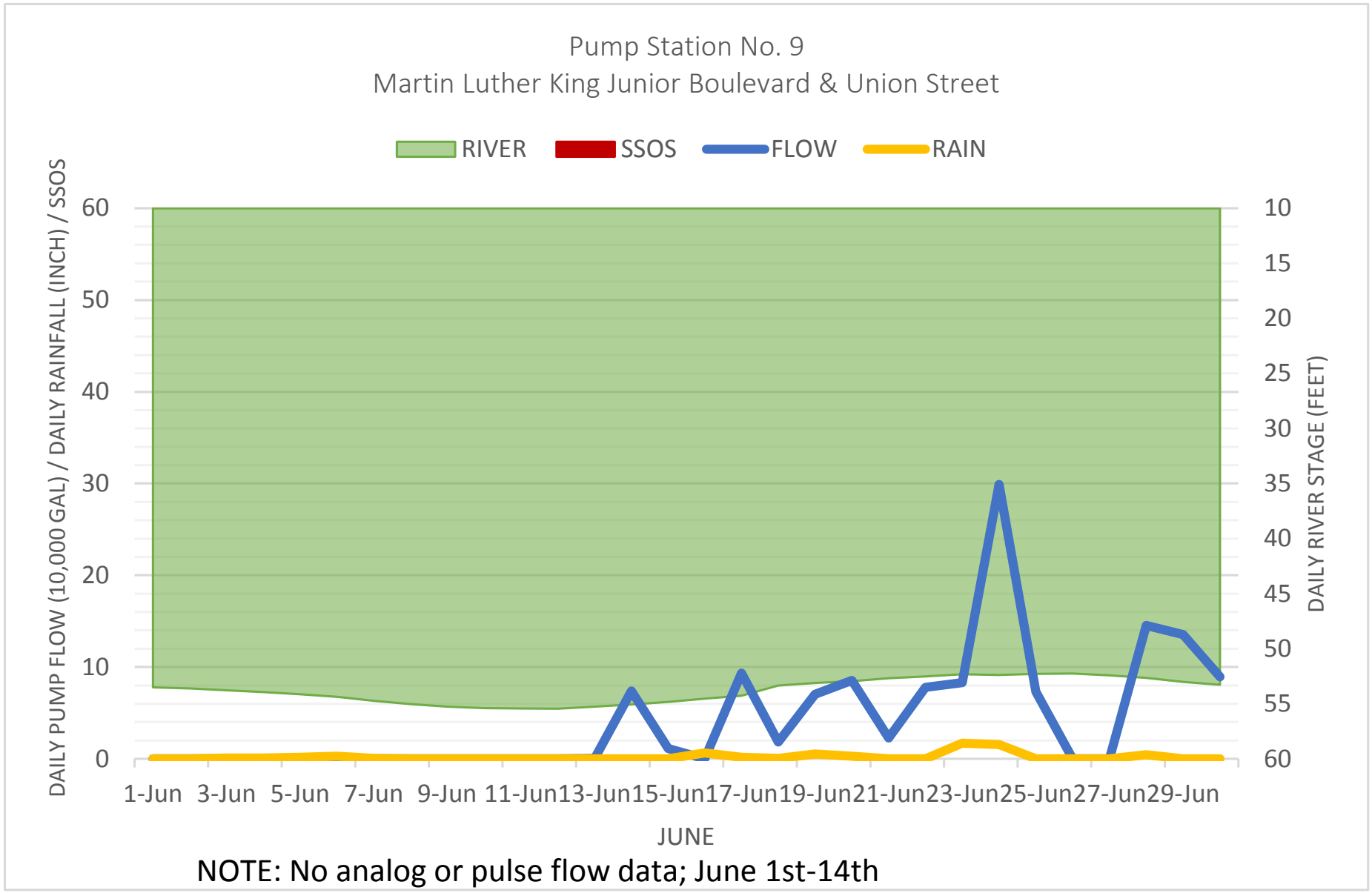
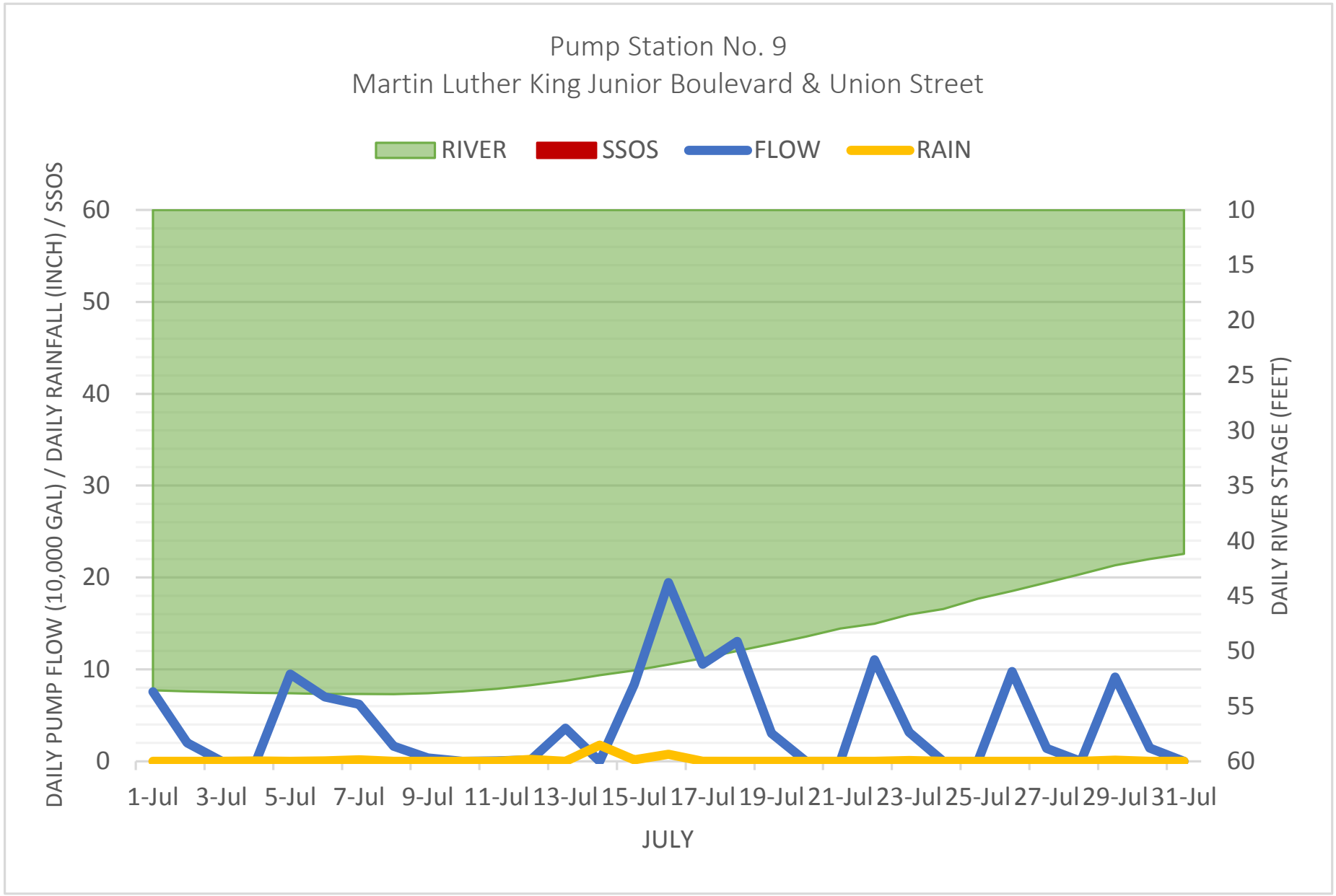
27-Apr
29-Apr
APRIL

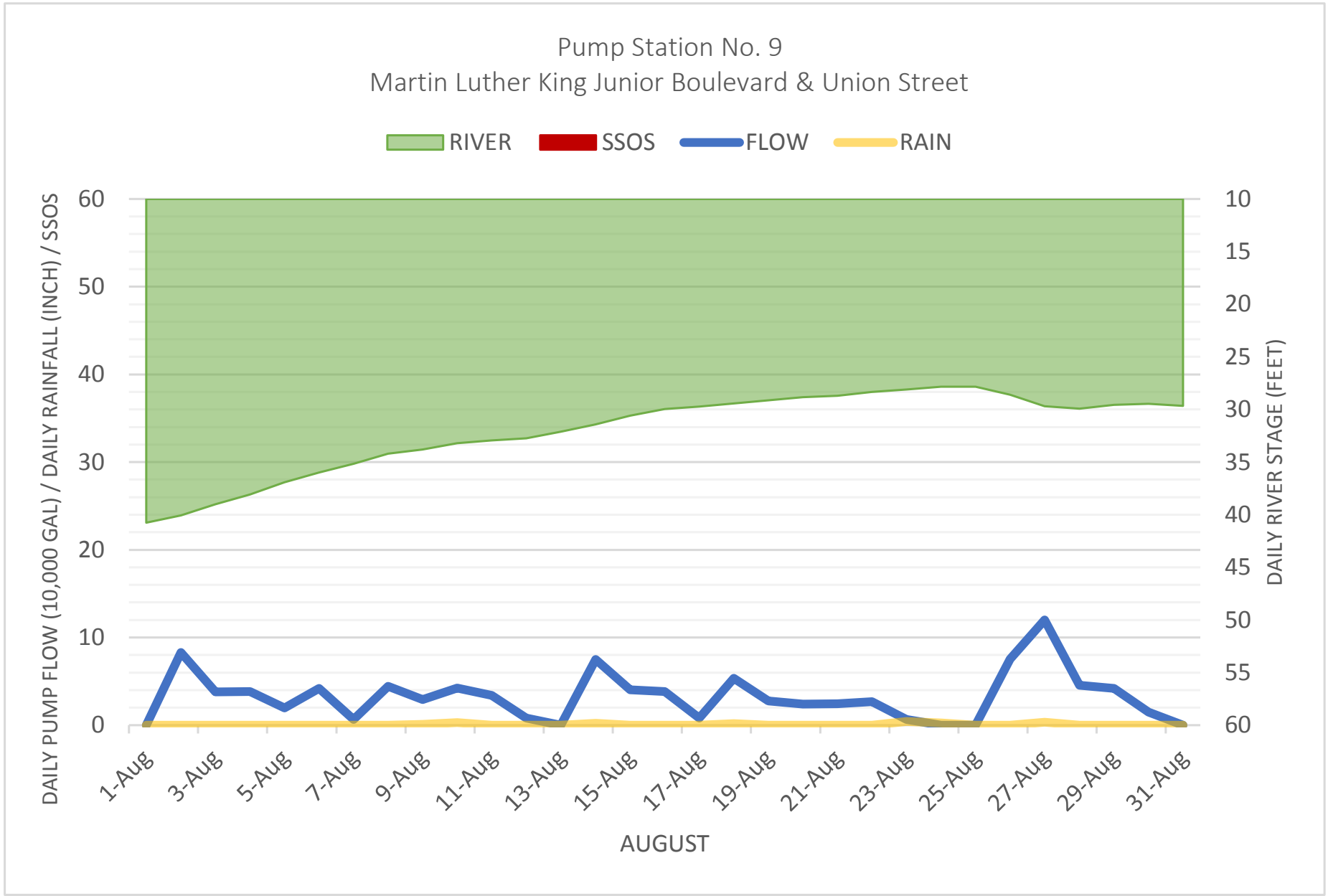


NOTE: No analog or pulse flow data; May 19th-31st



NOTE: No analog or pulse flow data; June 1st-14th


Pump Station No. 9
Martin Luther King Junior Boulevard & Union Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
60
50
40
30
20
10
0
10
15
20
25
30
35
40
45
50
55
60
1-Jul
3-Jul
5-Jul
7-Jul
9-Jul
11-Jul
13-Jul
15-Jul
17-Jul
19-Jul
21-Jul
23-Jul
25-Jul
27-Jul
29-Jul
31-Jul
JULY


Pump Station No. 9
Martin Luther King Junior Boulevard & Union Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
60
50
40
30
20
10
0
10
15
20
25
30
35
40
45
50
55
60
1-Aug
3-Aug
5-Aug
7-Aug
9-Aug
11-Aug
13-Aug
15-Aug
17-Aug
19-Aug
21-Aug
23-Aug
25-Aug
27-Aug
29-Aug
31-Aug
AUGUST

APPENDIX 27

MS19-A/PS28 I/I WORKSHEET

MS19-A/PS28
INFLOW & INFILTRATION WORKSHEET

Infiltration

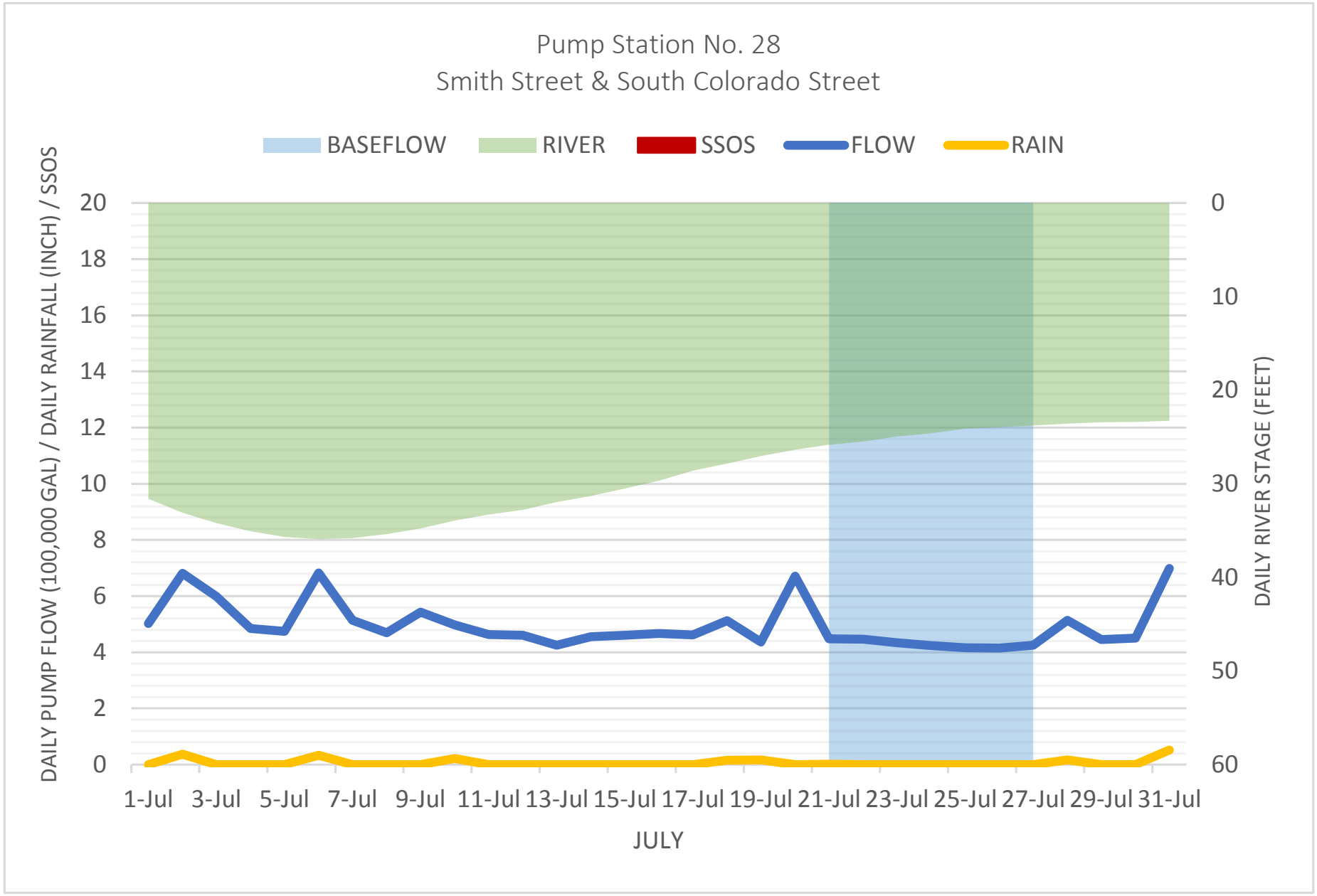
	feet	**miles**	**diameter**	**inch-miles**	
24" Gravity	3336	0.63	24.00	15.16364	
21" Gravity	1397	0.26	21.00	5.55625	
18" Gravity	2349	0.44	18.00	8.007955	
15" Gravity	648	0.12	15.00	1.840909	
12" Gravity	1015	0.19	12.00	2.306818	
10" Gravity	9446	1.79	10.00	17.89015	
8" Gravity	55104.8	10.44	8	83.49212	
4" Laterals	55150	10.45	4	41.7803	
				147.3103	**total inch-miles in system**
		average maximum infiltration	inch-miles		
		224,642.8571	147.31	**1524.964**	**total gpd/idm**

Inflow

	feet	miles	diameter	inch-miles	
24" Gravity	3336	0.63	24.00	15.16364	
21" Gravity	1397	0.26	21.00	5.55625	
18" Gravity	2349	0.44	18.00	8.007955	
15" Gravity	648	0.12	15.00	1.840909	
12" Gravity	1015	0.19	12.00	2.306818	
10" Gravity	9446	1.79	10.00	17.89015	
8" Gravity	55104.8	10.44	8.00	83.49212	
4" Laterals	55150	10.45	4.00	41.7803	
TOTAL	110254.8				
				147.3103	**total inch-miles in system**
		average maximum inflow	inch-miles		
		552,214.2857	147.31	**3748.647**	**total gpd/idm**

APPENDIX 28

MS19-A/PS28 GRAPHS


Pump Station No. 28
Smith Street & South Colorado Street
BASEFLOW
RIVER
SSOS
FLOW
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DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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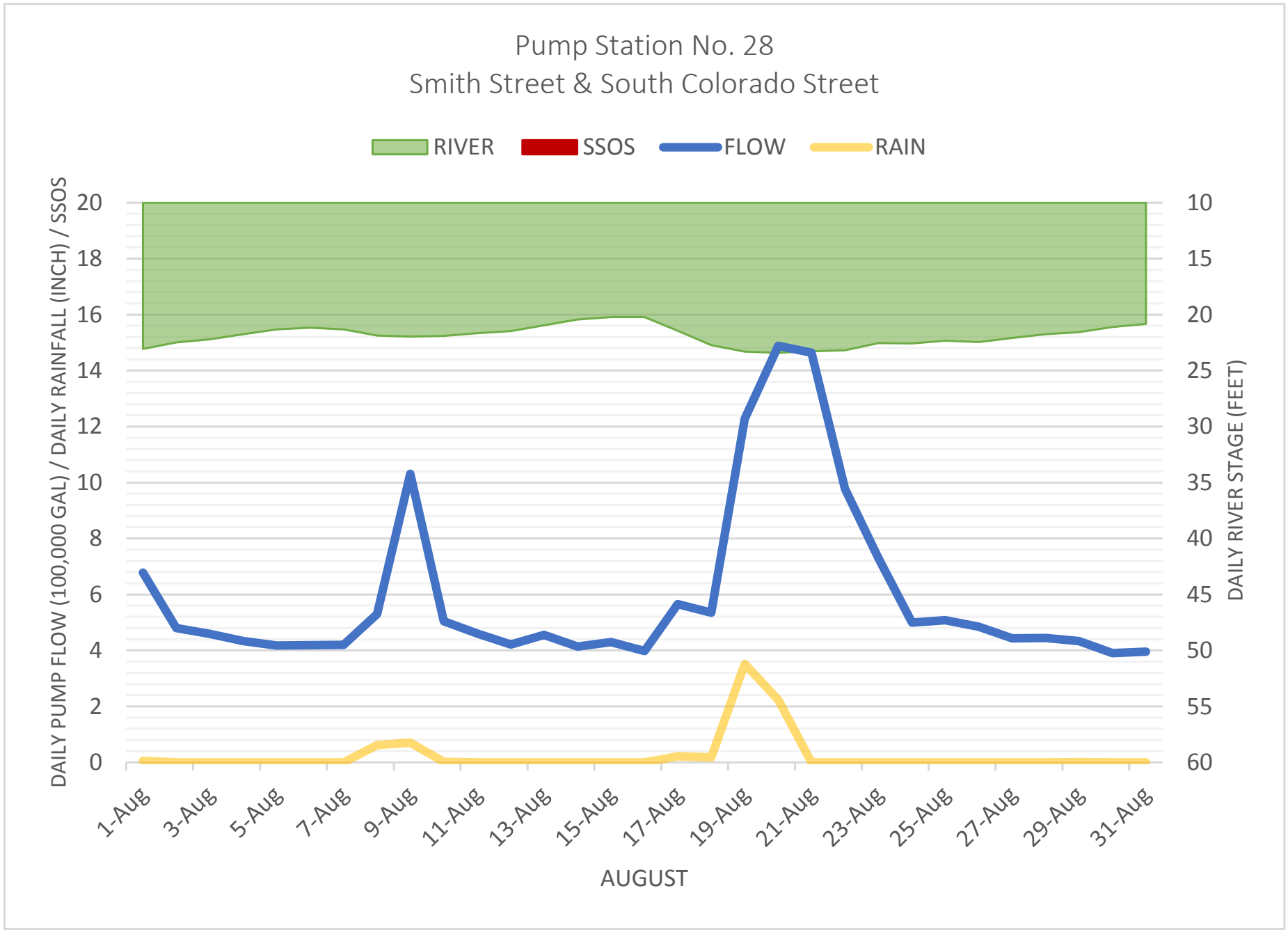
31-Jul
JULY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Smith Street & South Colorado Street
RIVER
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RAIN
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DAILY RIVER STAGE (FEET)
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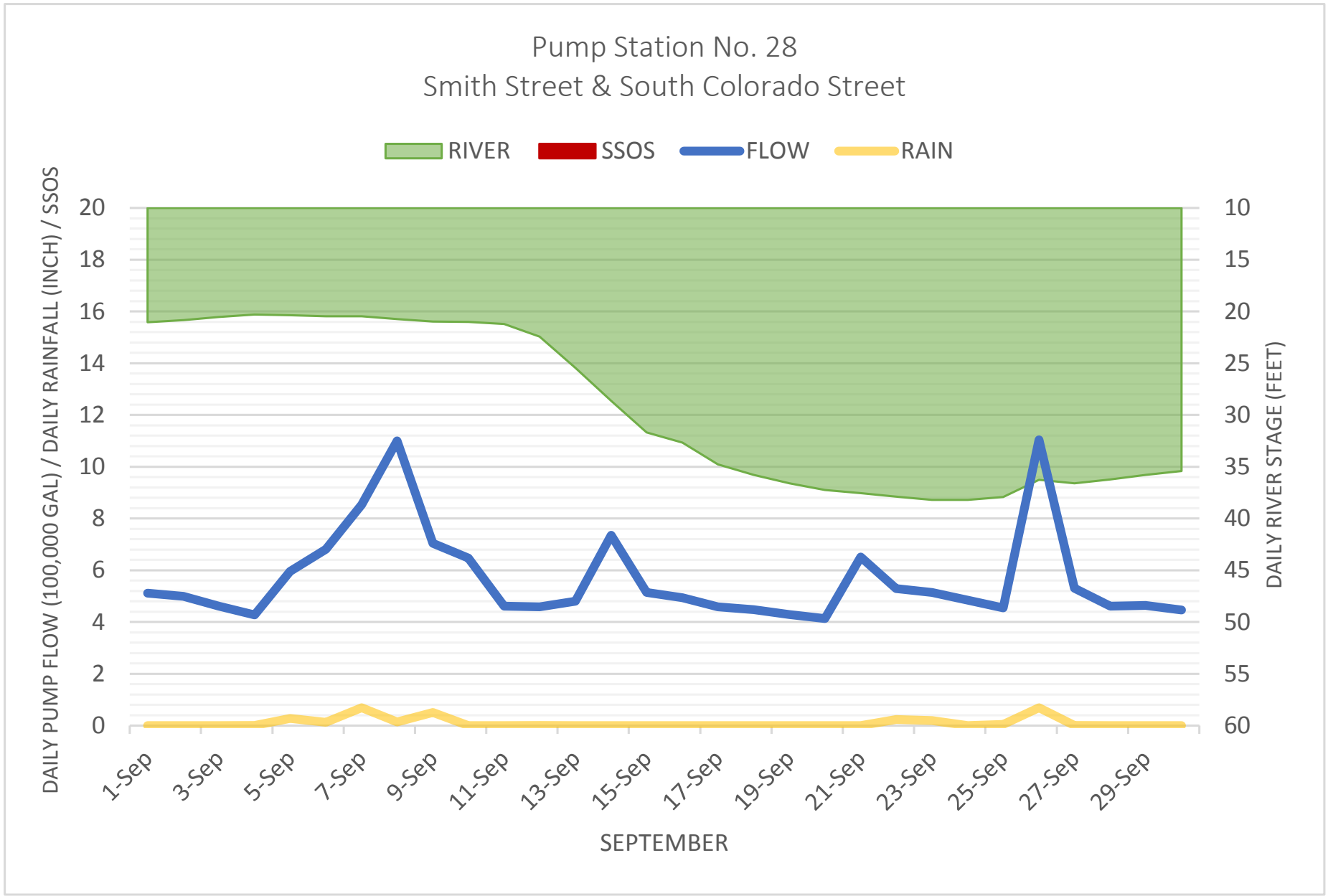
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RIVER
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DAILY RIVER STAGE (FEET)
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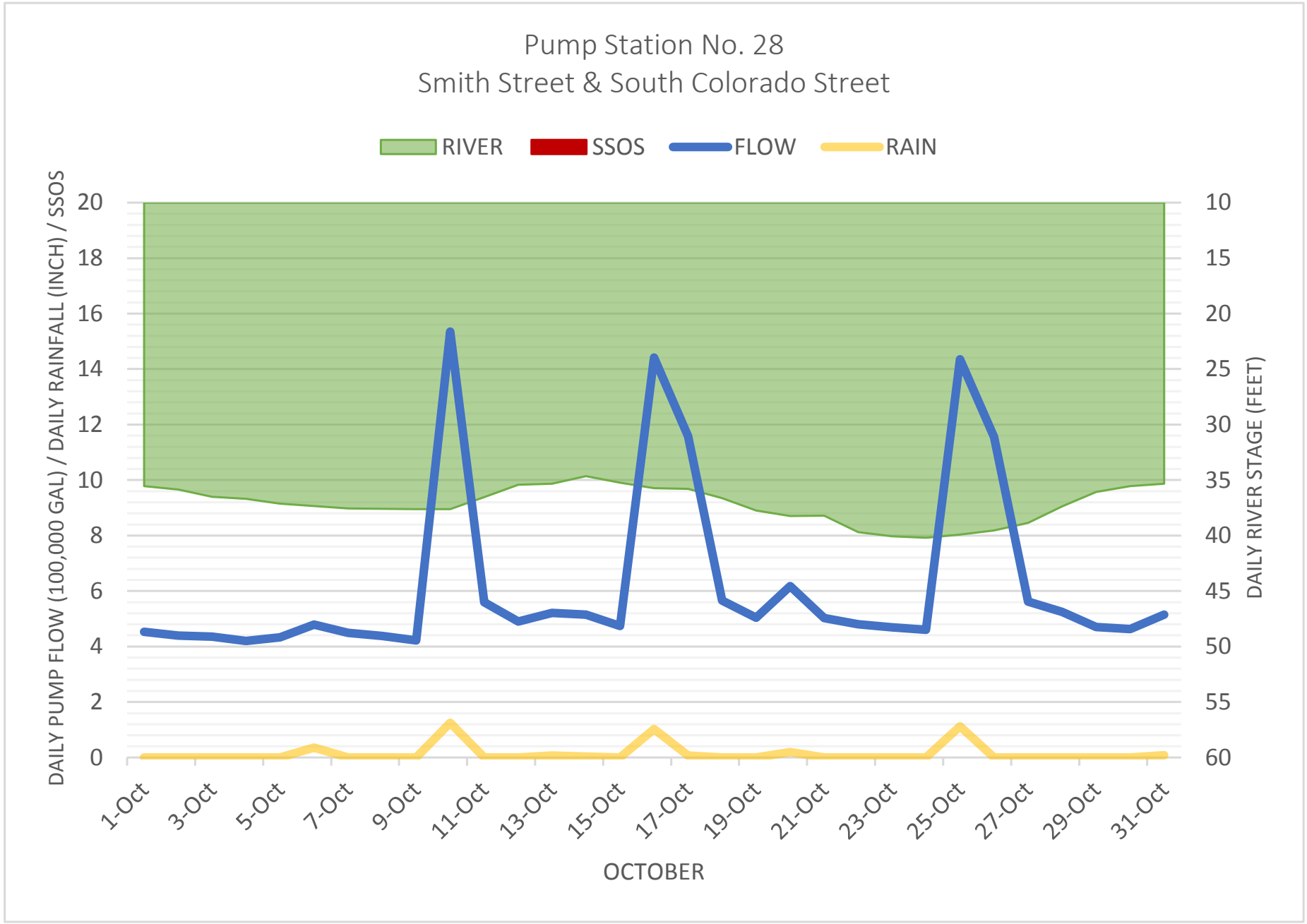
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RIVER
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DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
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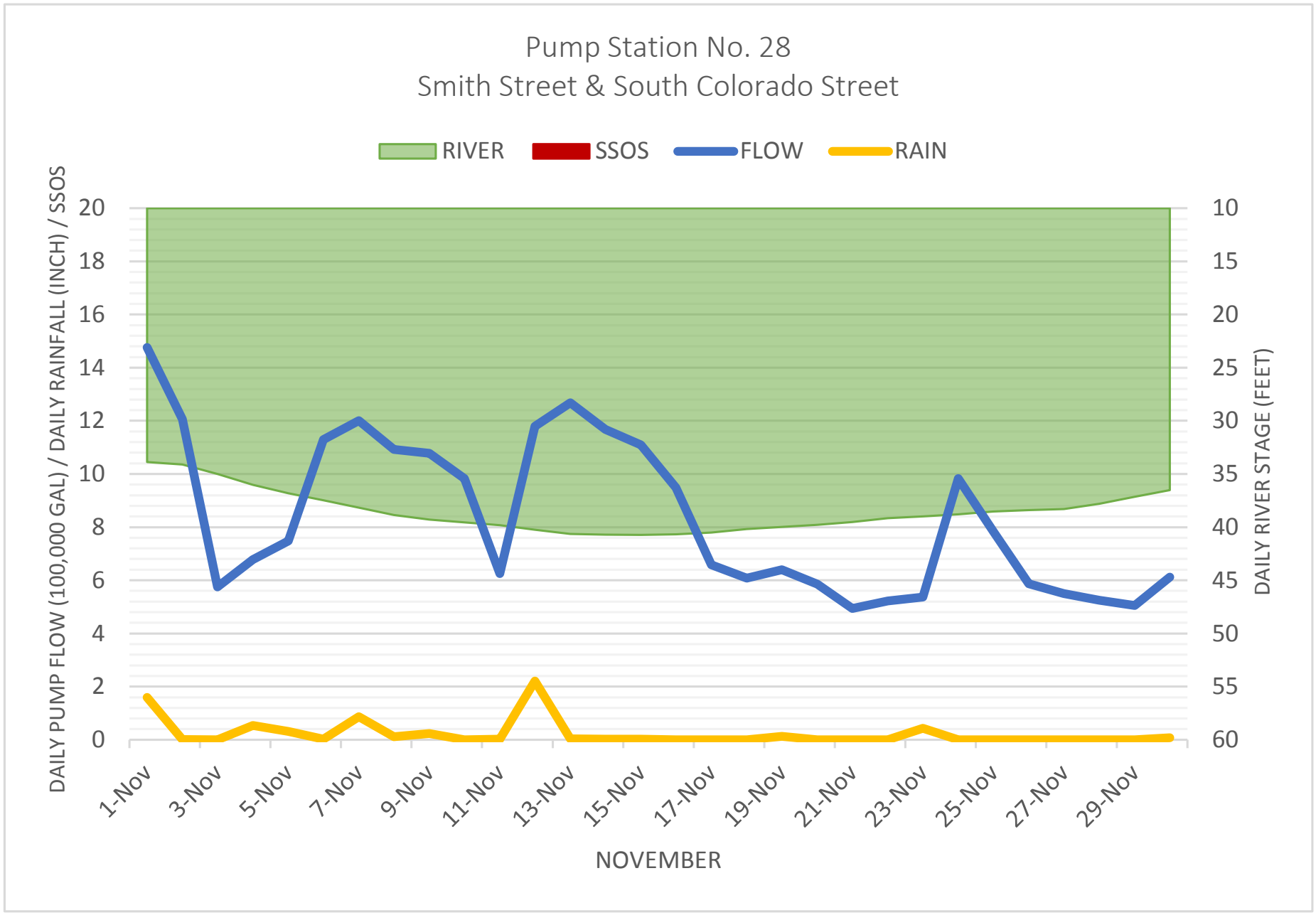
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Smith Street & South Colorado Street
RIVER
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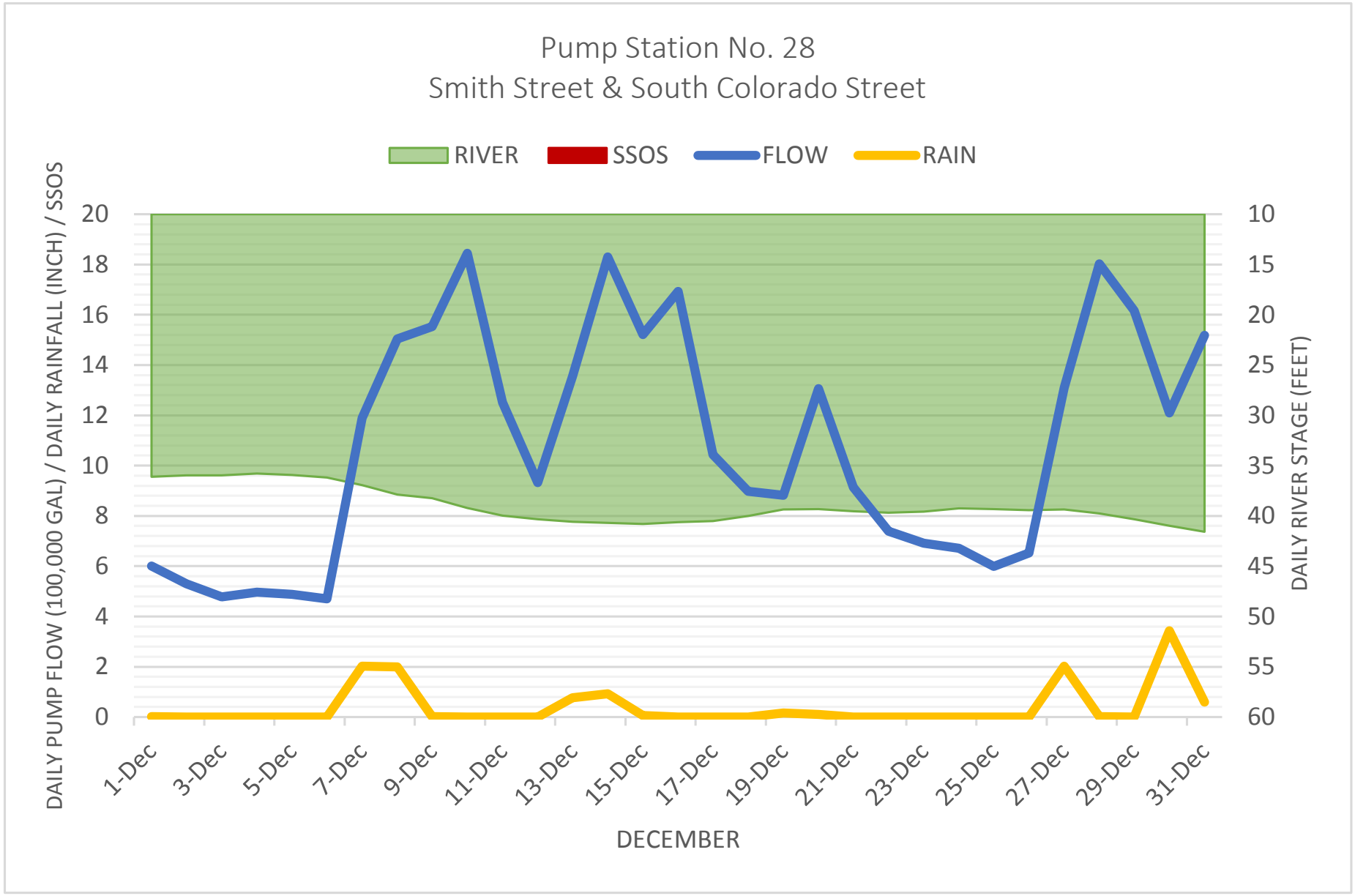
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Smith Street & South Colorado Street
RIVER
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DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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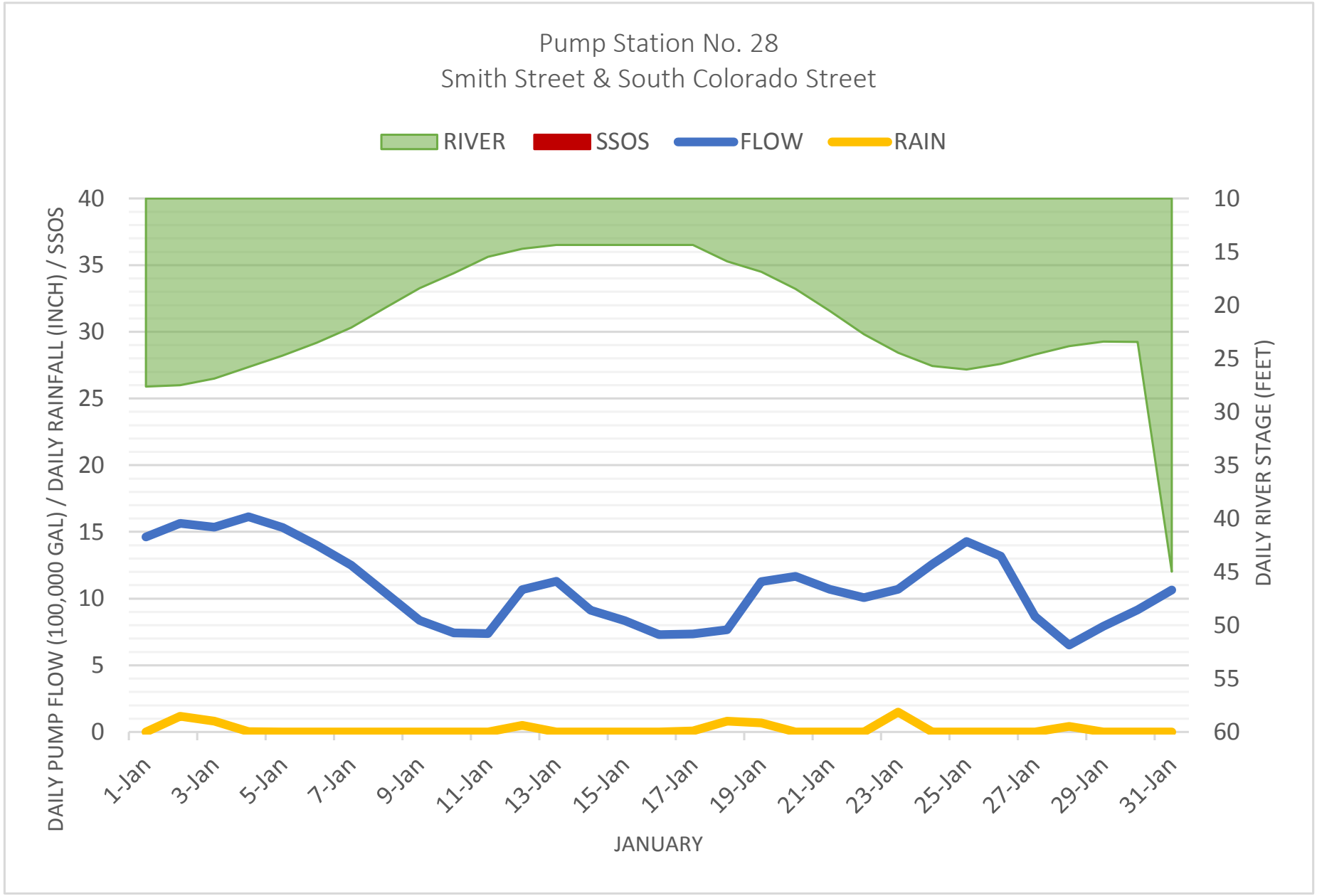
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Smith Street & South Colorado Street
RIVER
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RAIN
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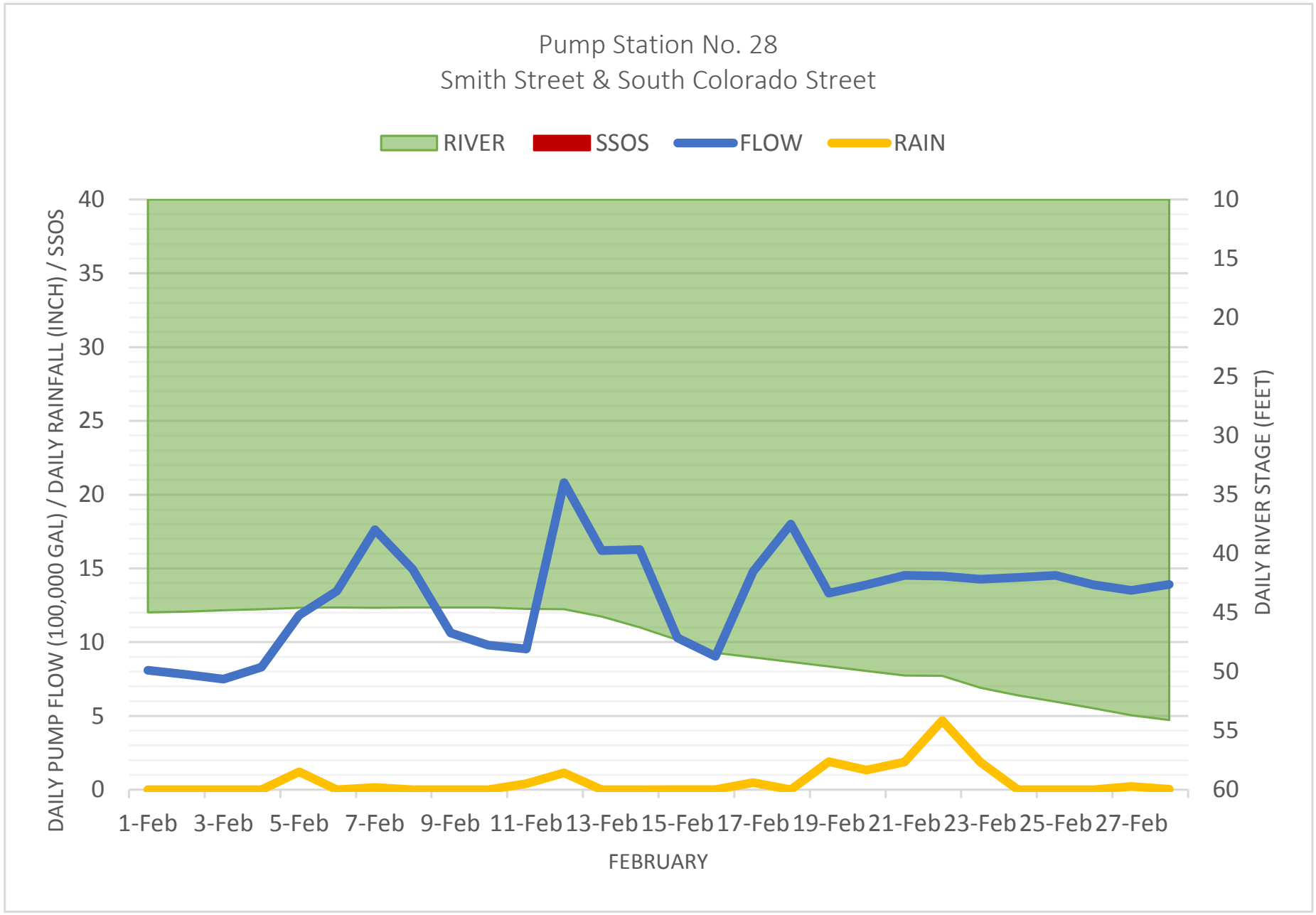
JANUARY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Smith Street & South Colorado Street
RIVER
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FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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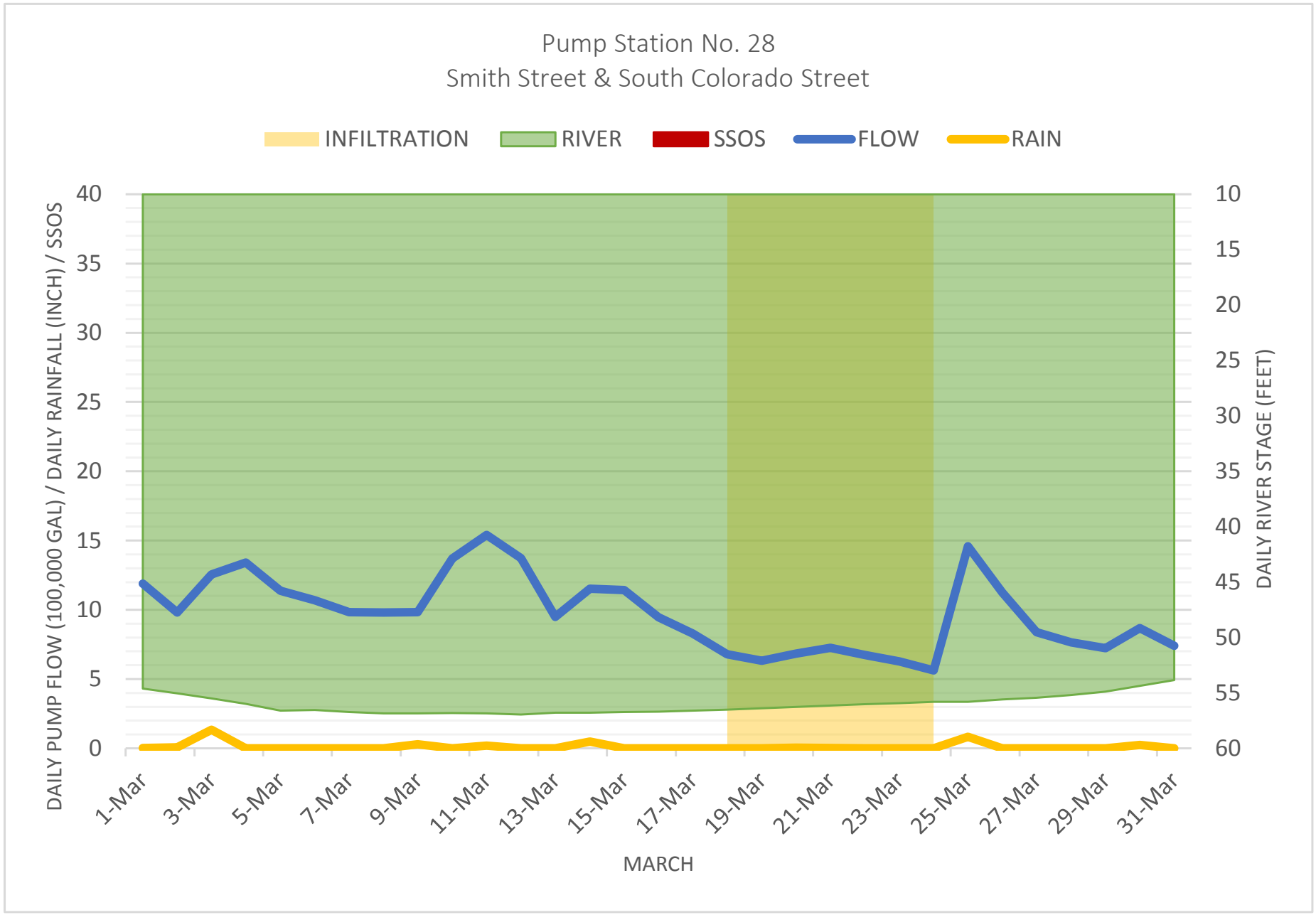
Pump Station No. 28
Smith Street & South Colorado Street
INFILTRATION
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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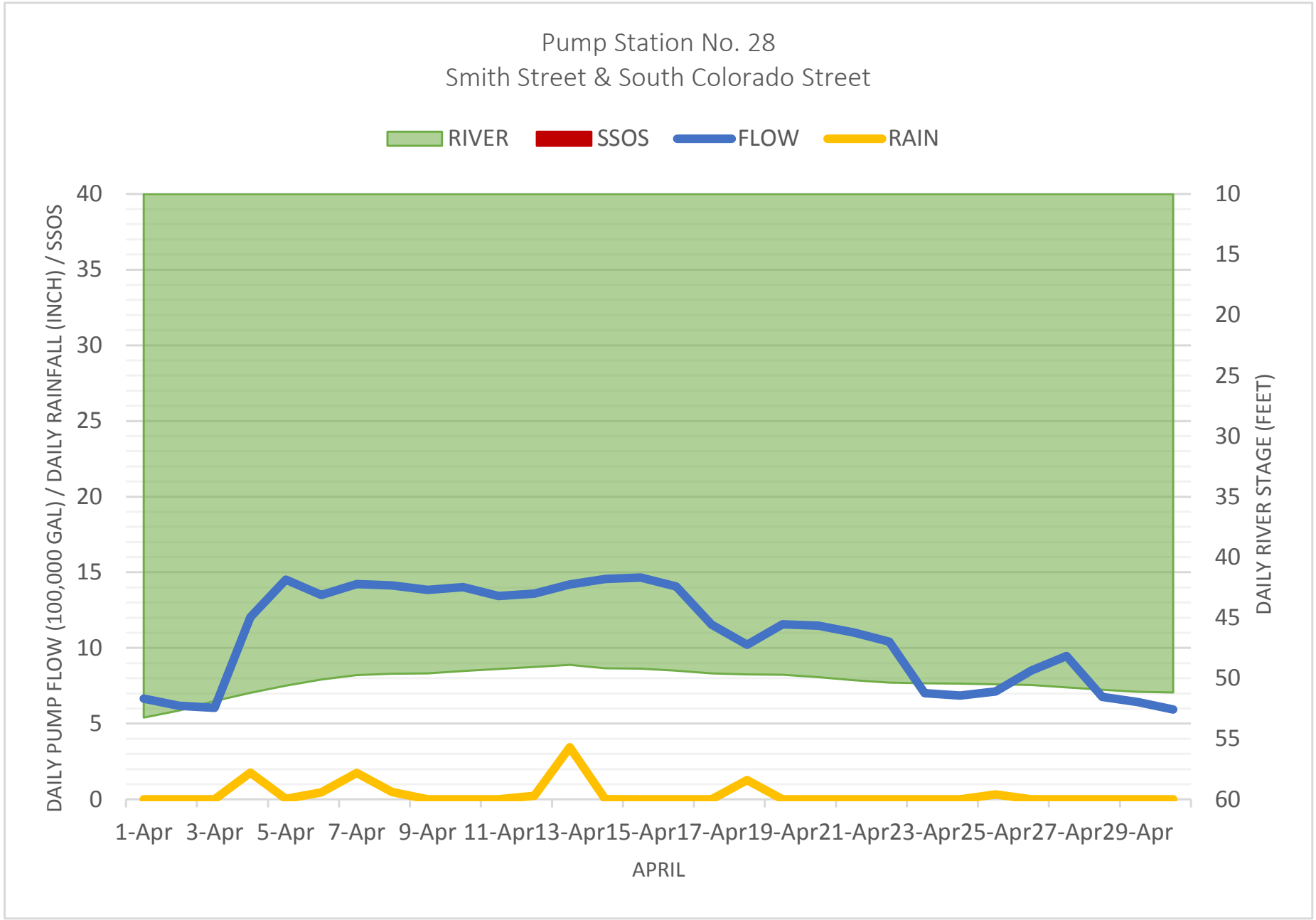
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Smith Street & South Colorado Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
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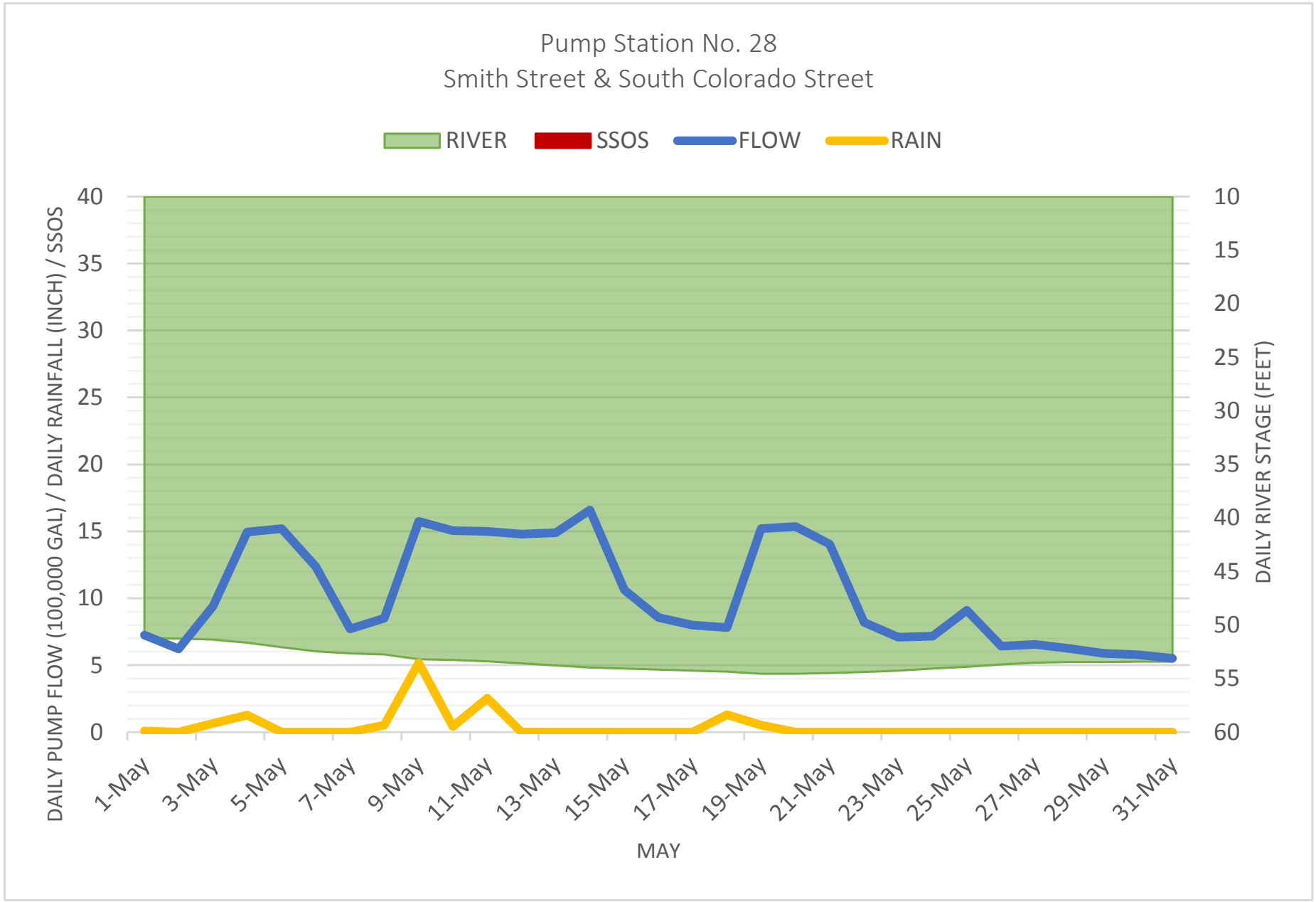
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Smith Street & South Colorado Street
RIVER
SSOS
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RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
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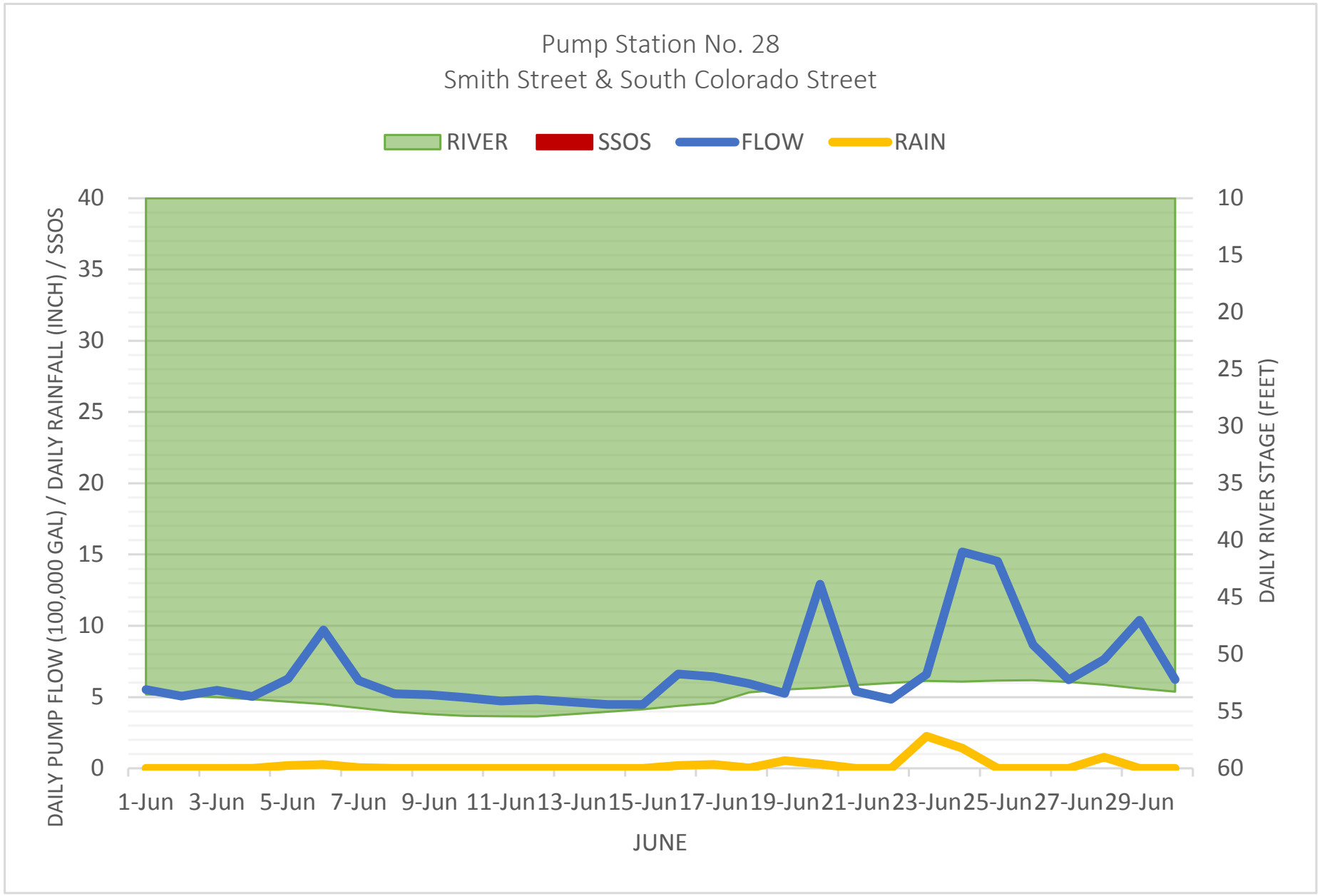
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Smith Street & South Colorado Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
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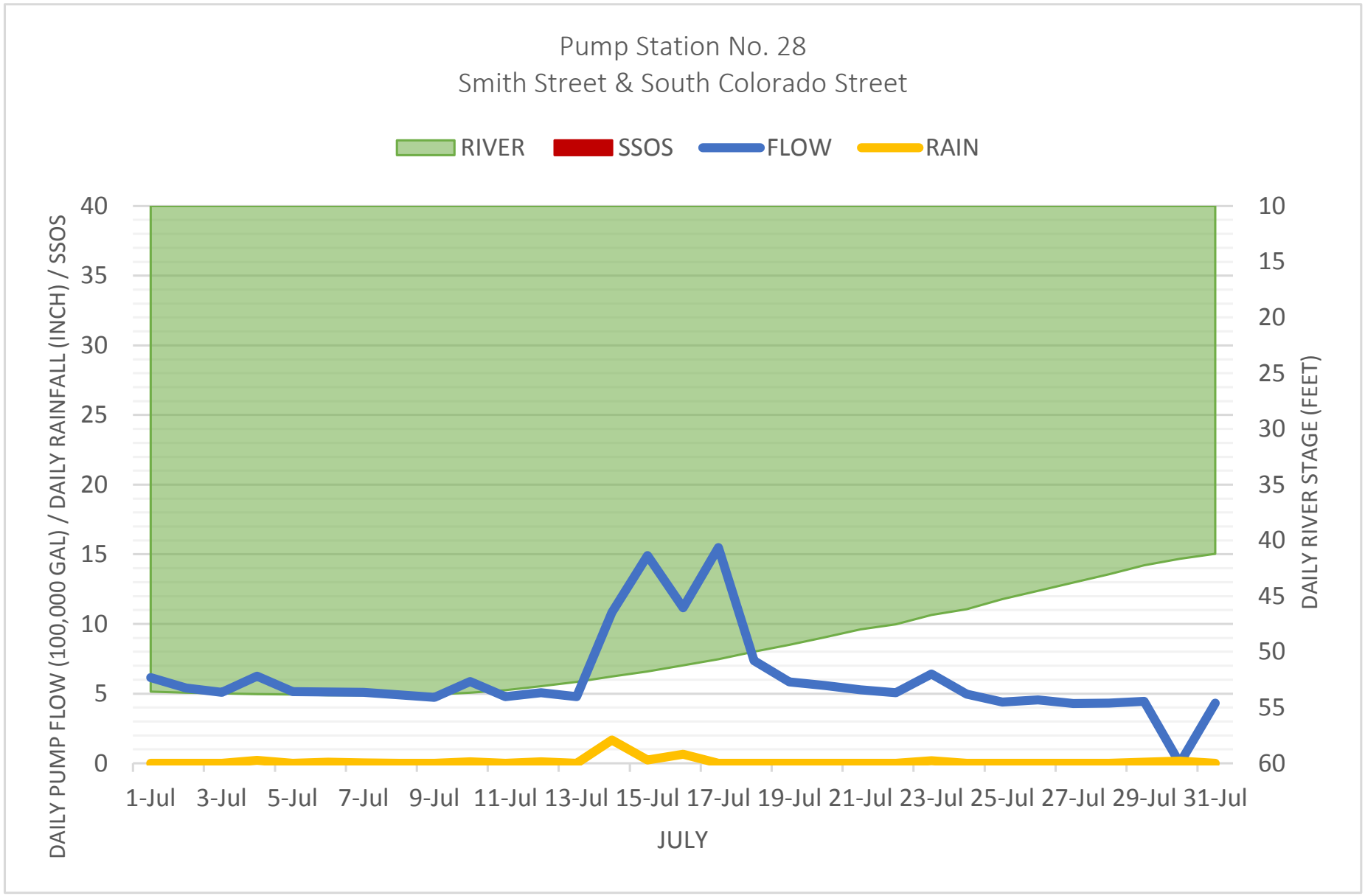
JUNE


Pump Station No. 28
Smith Street & South Colorado Street
RIVER
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DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
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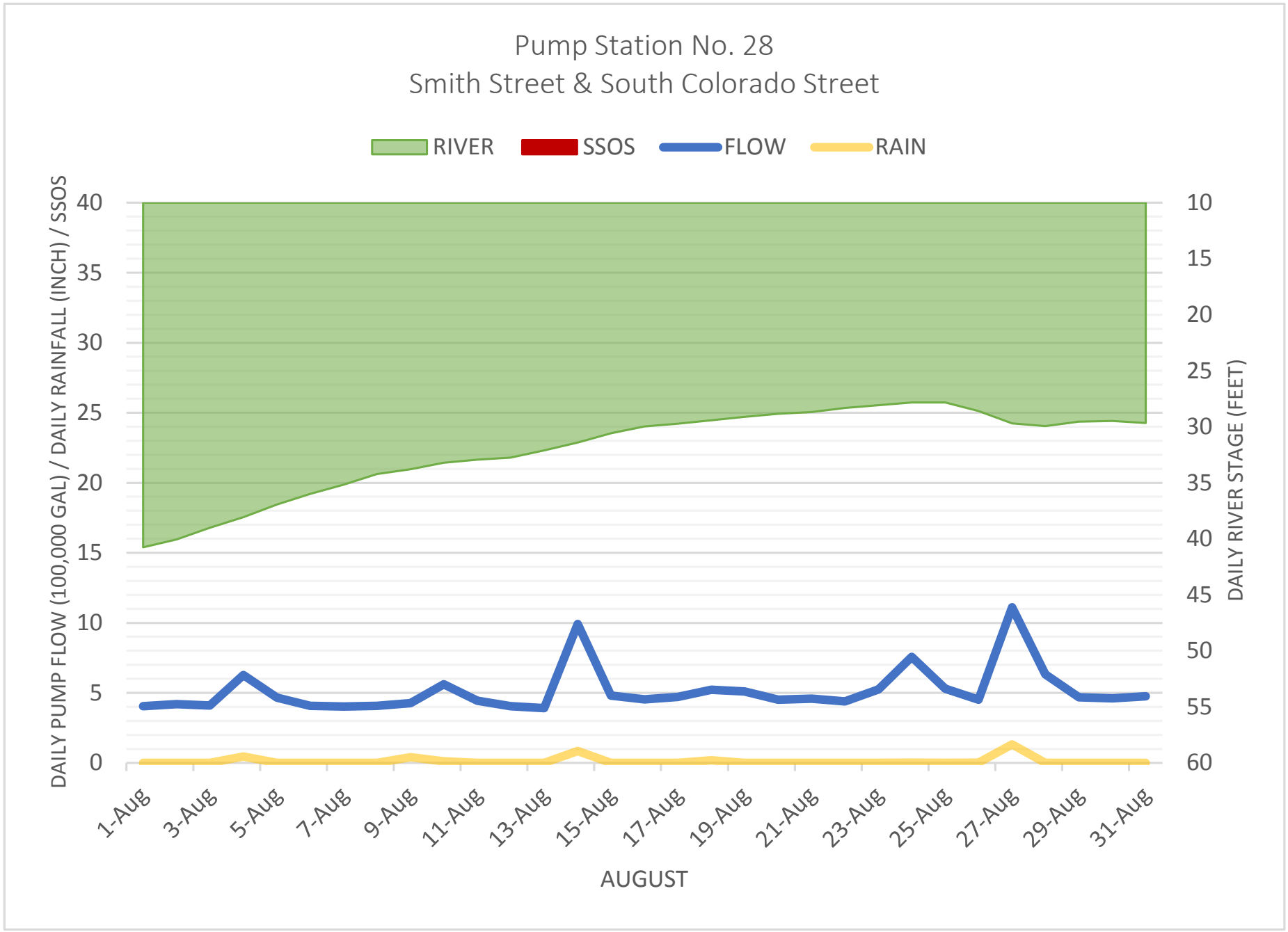
JULY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Smith Street & South Colorado Street
RIVER
SSOS
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DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
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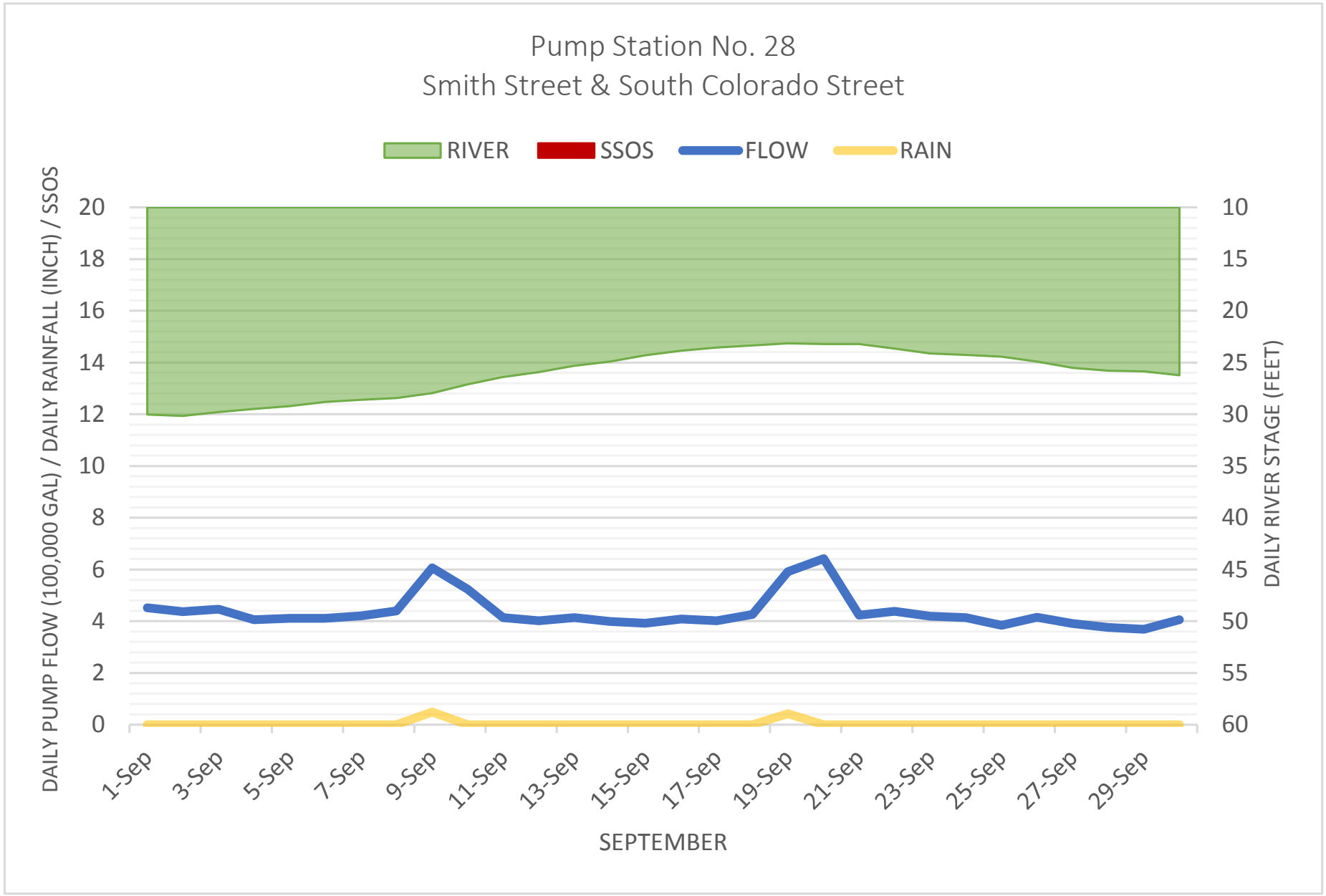
AUGUST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Smith Street & South Colorado Street
RIVER
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DAILY RIVER STAGE (FEET)
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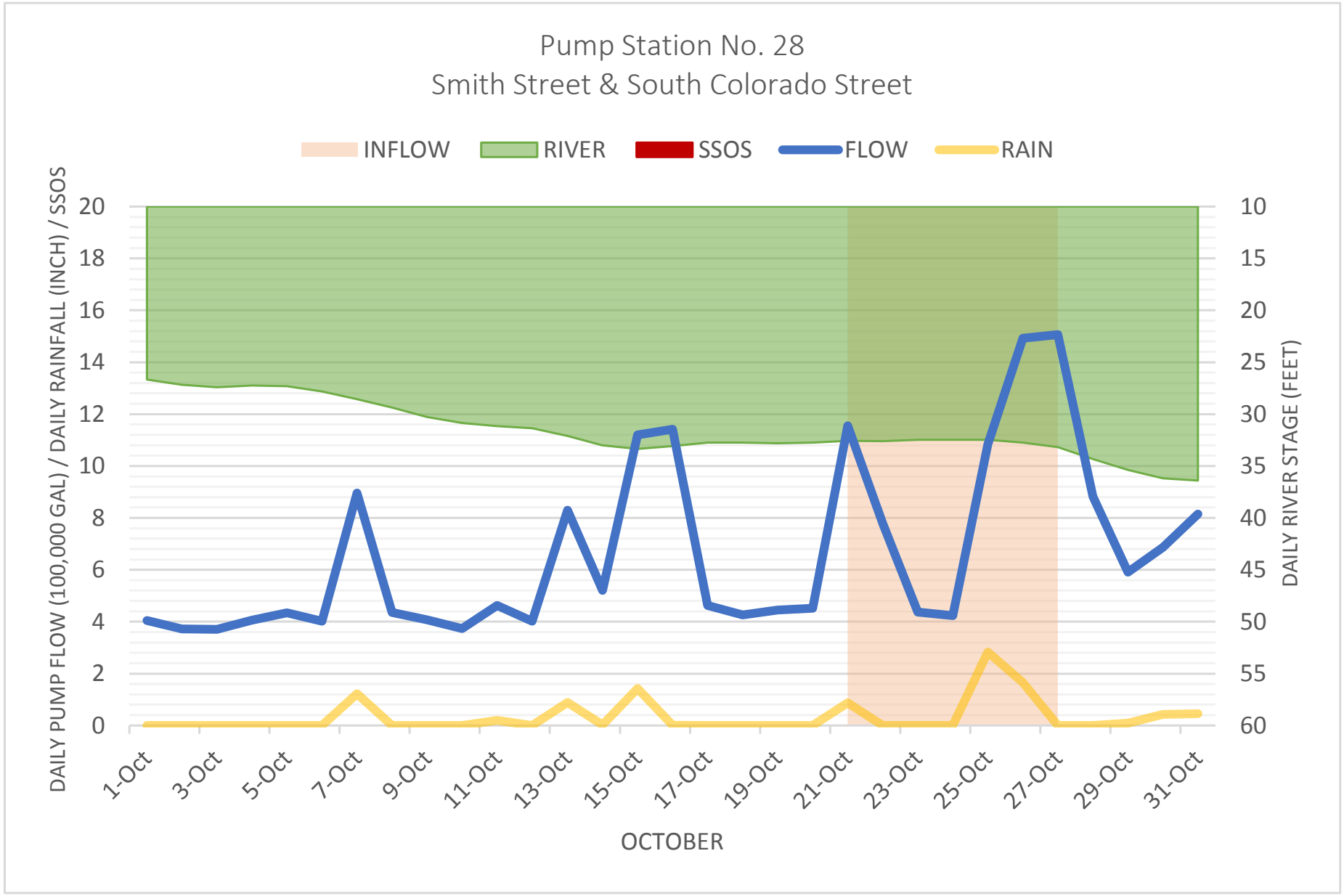
29-Sep
SEPTEMBER


Pump Station No. 28
Smith Street & South Colorado Street
INFLOW
RIVER
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RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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31-Oct
OCTOBER

APPENDIX 29

MS22-A/PS31 I/I WORKSHEET

MS22-A/PS31
INFLOW & INFILTRATION WORKSHEET

Infiltration

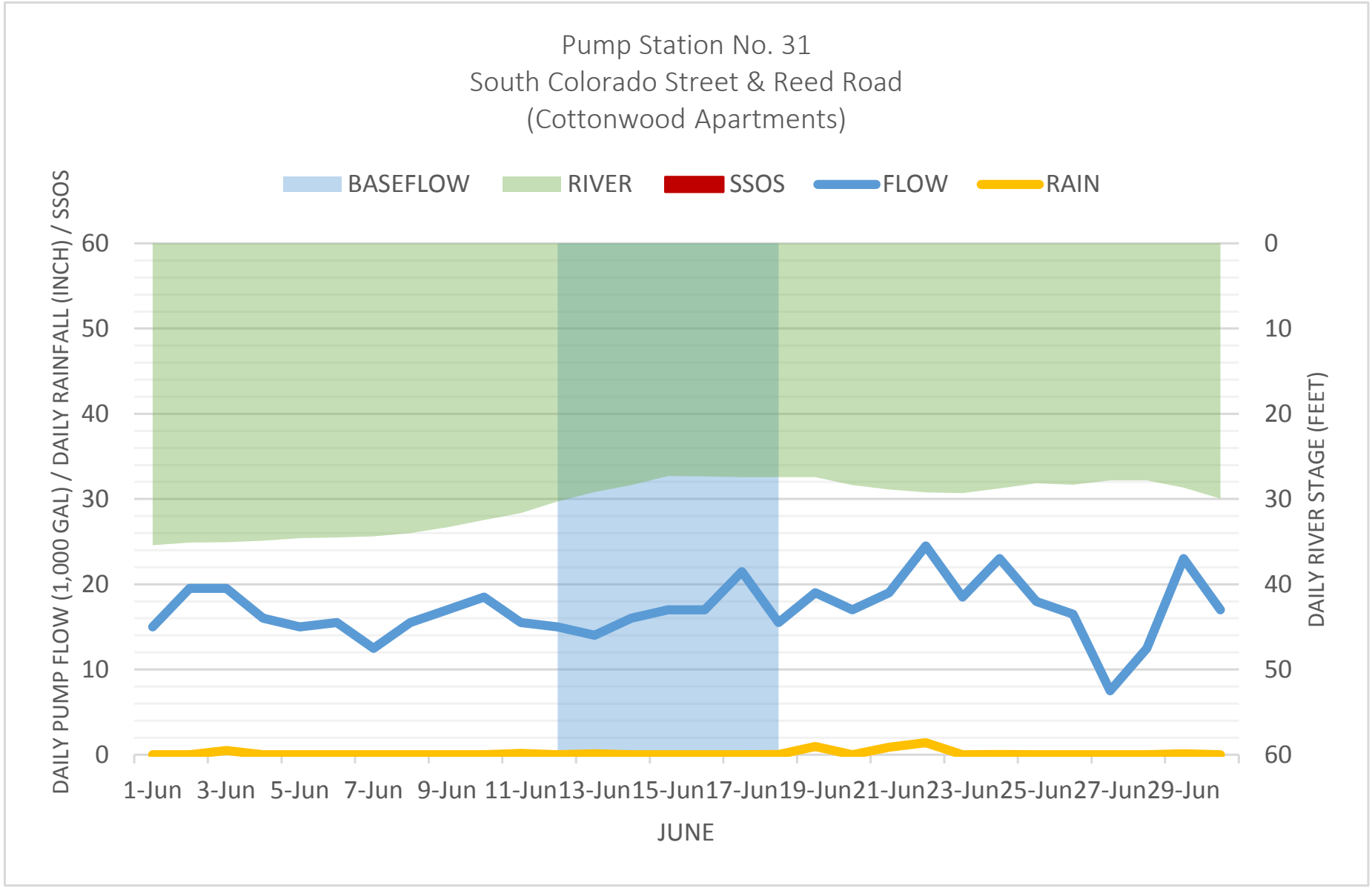
	feet	miles	diameter	inch-miles	
8" Gravity	1824	0.35	8	2.763636	
laterals	3000	0.57	4	2.272727	
				5.036364	**total inch-miles in system**
		maximum average infiltration	inch-miles		
		-1,928.5714	5.04	**-382.929**	**total gpd/idm**

Inflow

	feet	miles	diameter	inch-miles	
8" Gravity	1824	0.35	8.00	2.763636	
laterals	3000	0.57	4.00	2.272727	
				5.036364	**total inch-miles in system**
		maximum average inflow	inch-miles		
		4,357.1429	5.04	**865.1367**	**total gpd/idm**

APPENDIX 30

MS22-A/PS31 GRAPHS


Pump Station No. 31
South Colorado Street & Reed Road
(Cottonwood Apartments)
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
60
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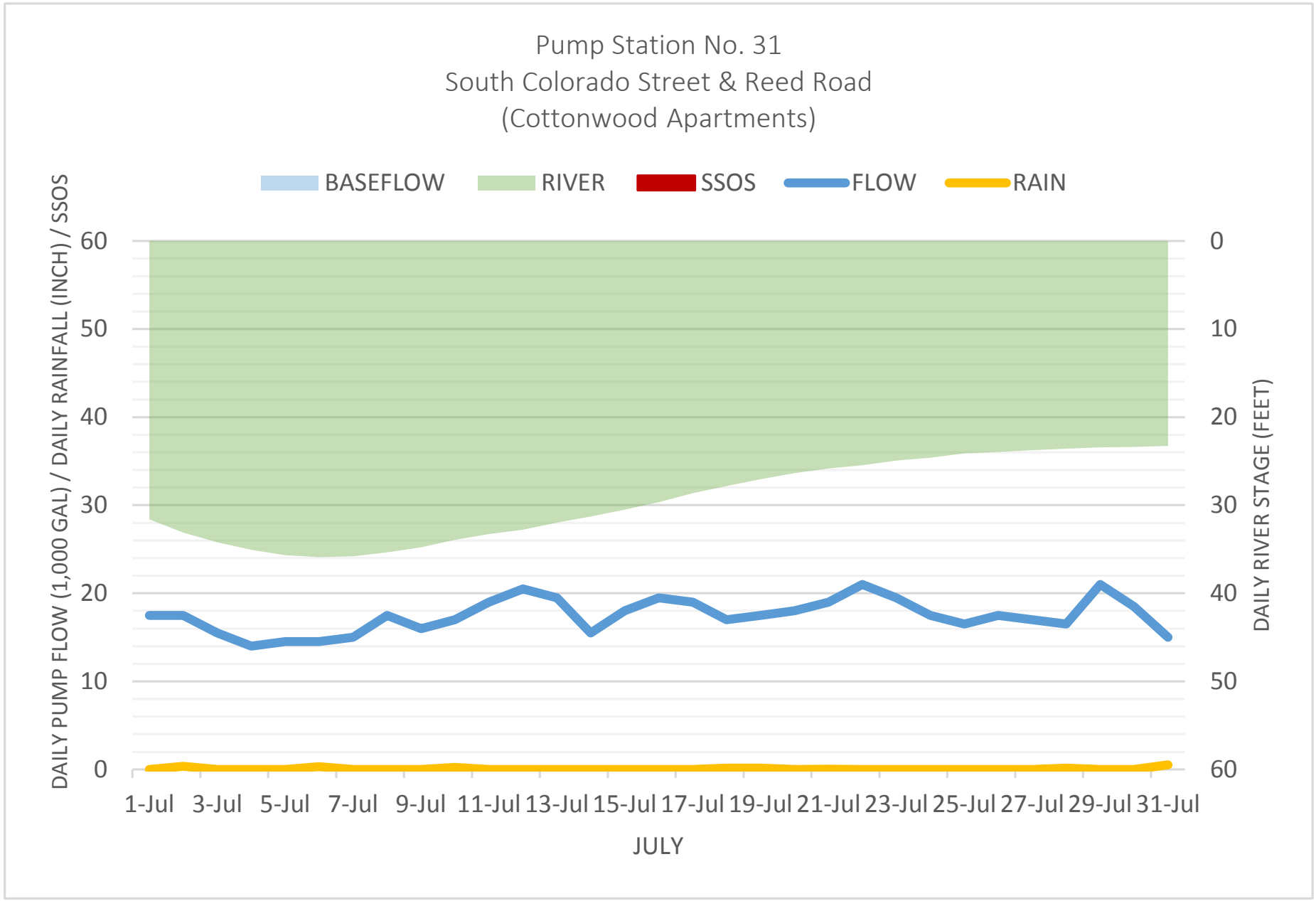
JUNE


Pump Station No. 31
South Colorado Street & Reed Road
(Cottonwood Apartments)
BASEFLOW
RIVER
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RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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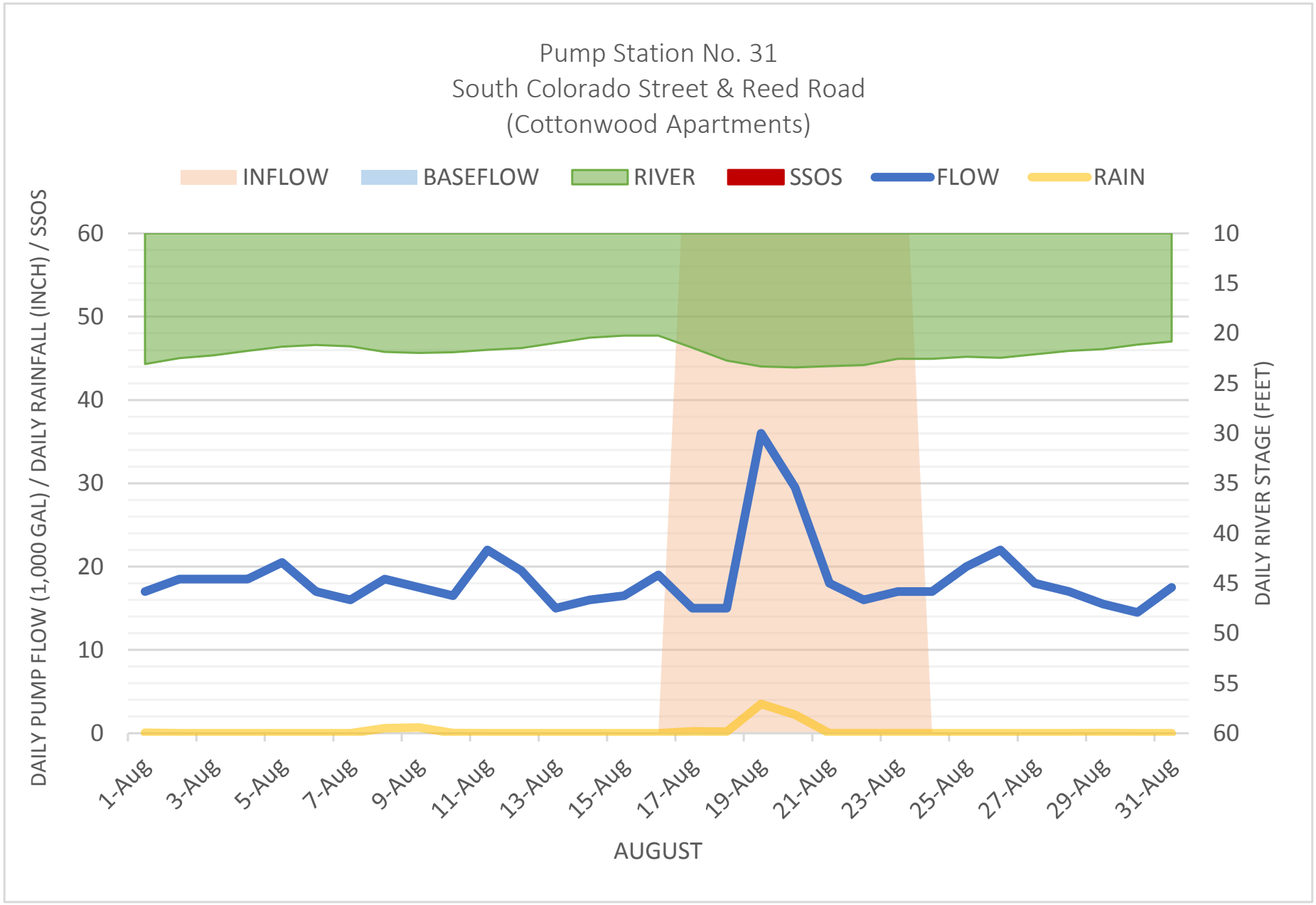
JULY


Pump Station No. 31
South Colorado Street & Reed Road
(Cottonwood Apartments)
INFLOW
BASEFLOW
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FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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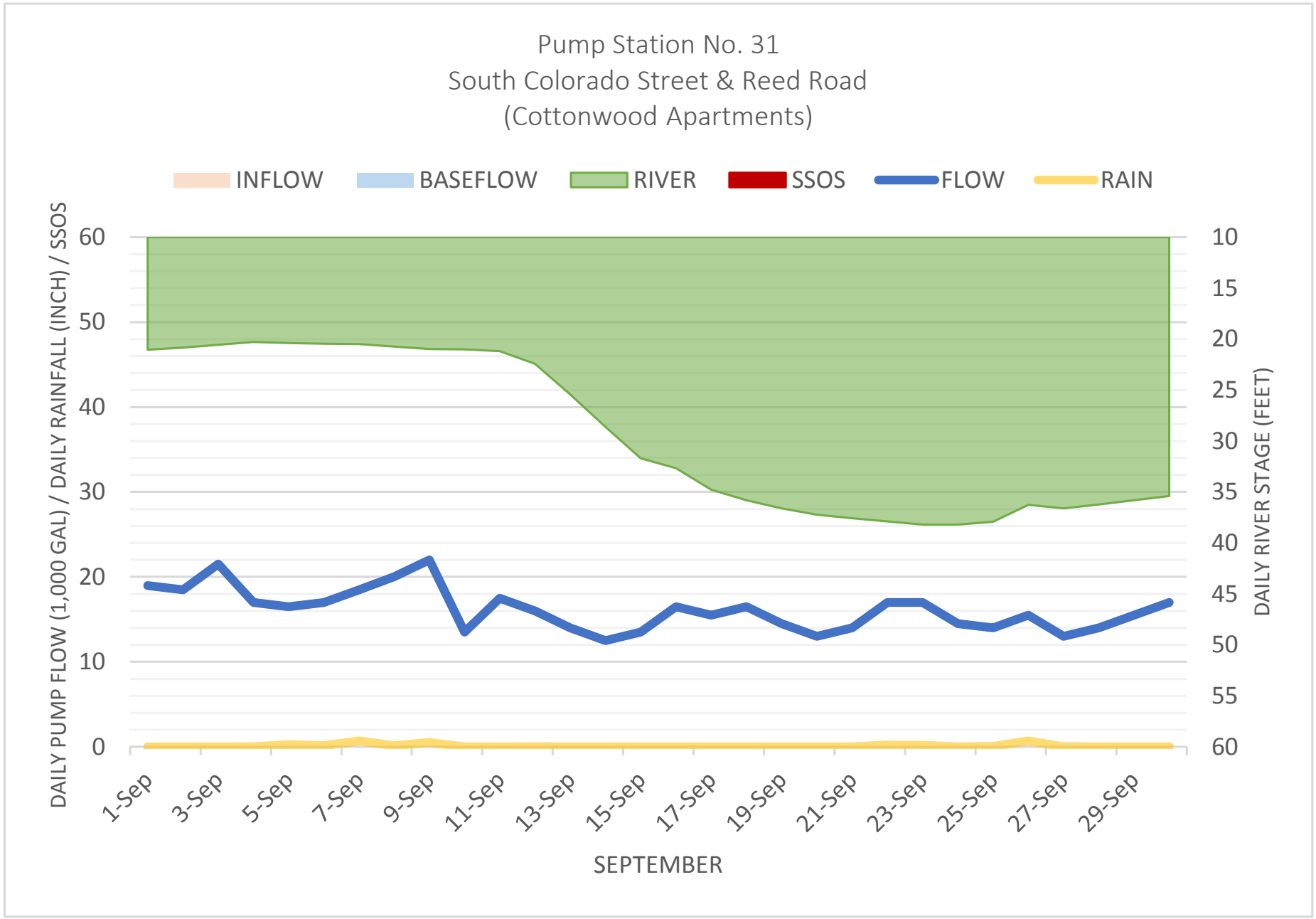
AUGUST


Pump Station No. 31
South Colorado Street & Reed Road
(Cottonwood Apartments)
INFLOW
BASEFLOW
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RAIN
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DAILY RIVER STAGE (FEET)
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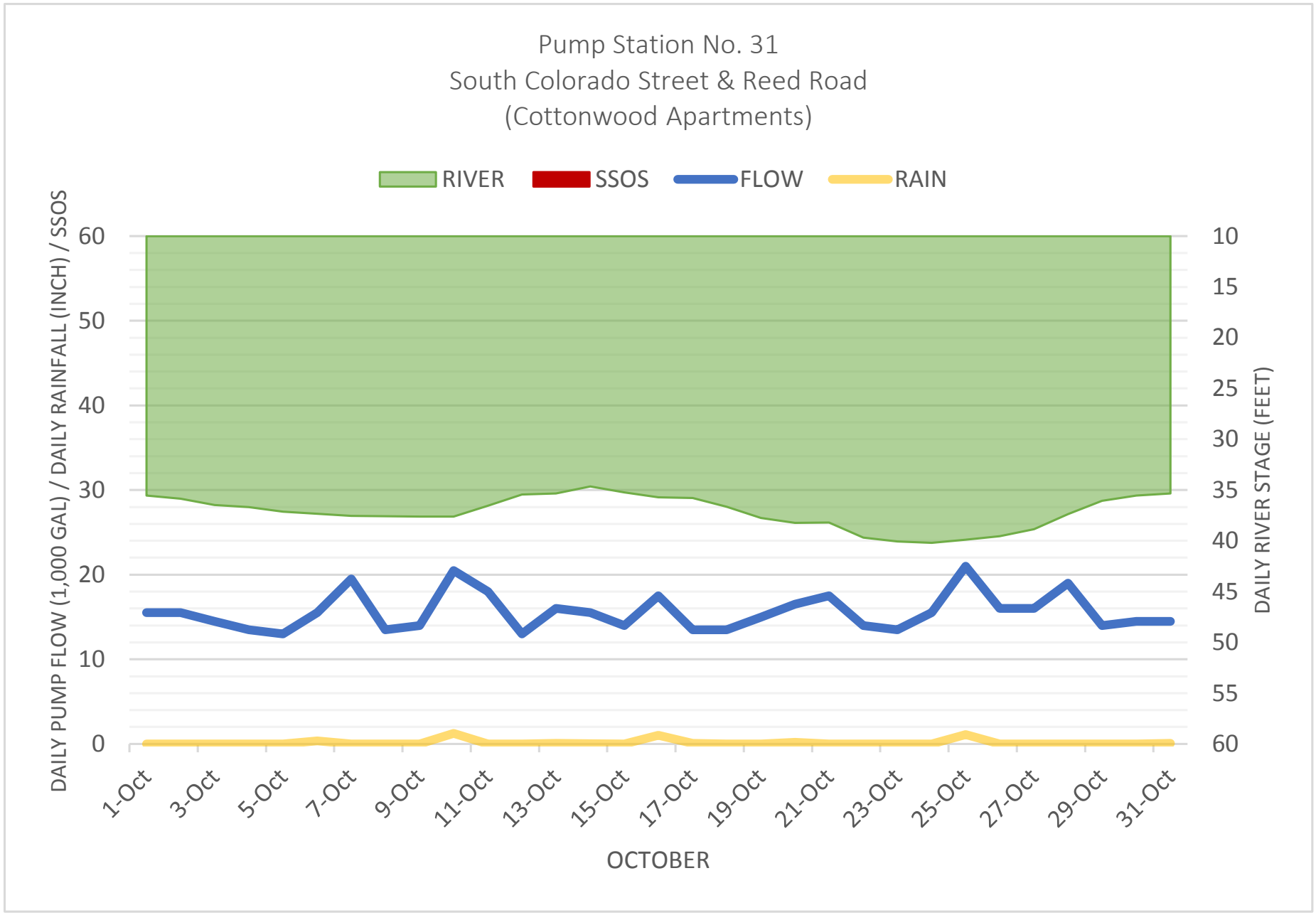
SEPTEMBER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(Cottonwood Apartments)
RIVER
SSOS
FLOW
RAIN
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DAILY RIVER STAGE (FEET)
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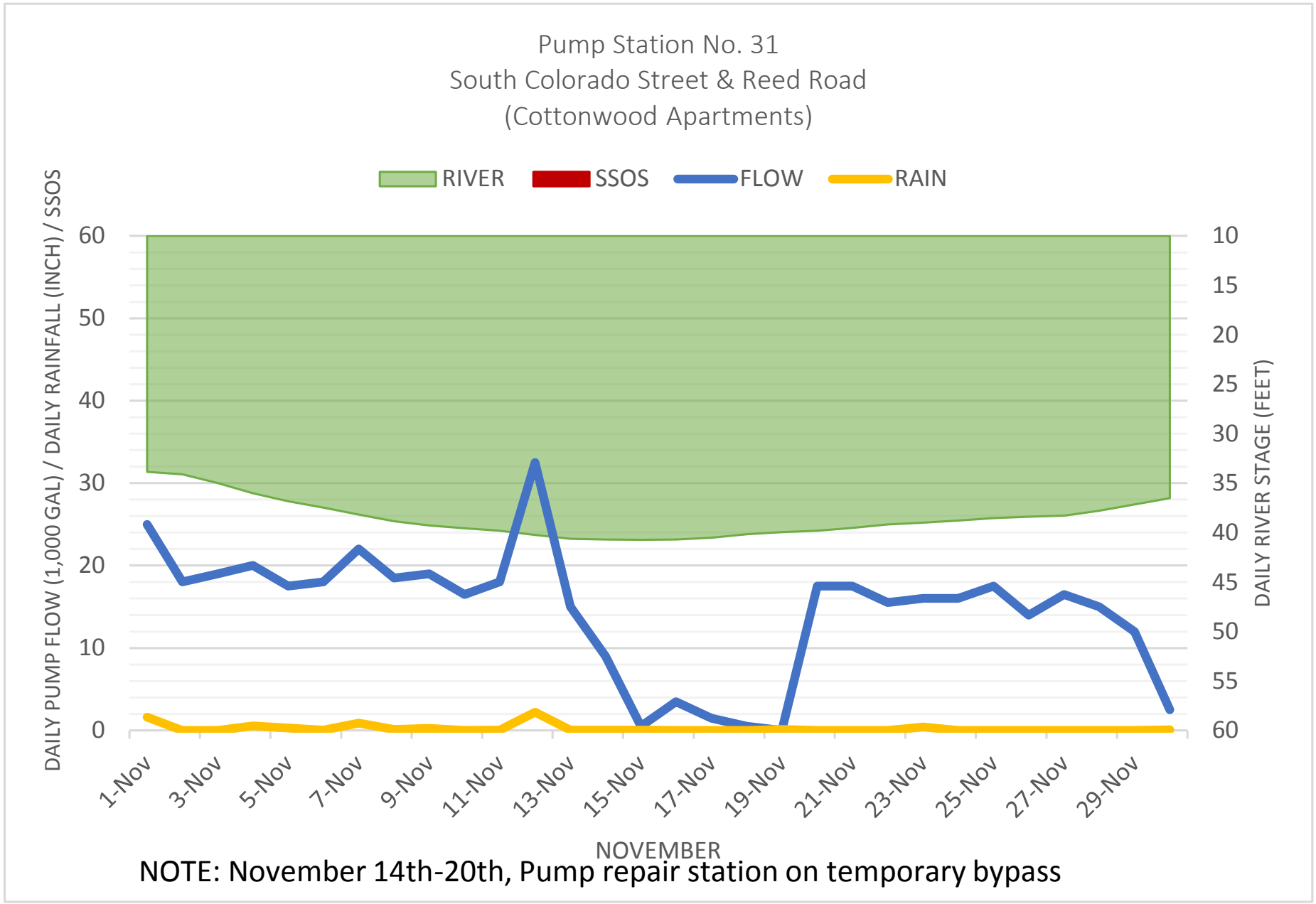
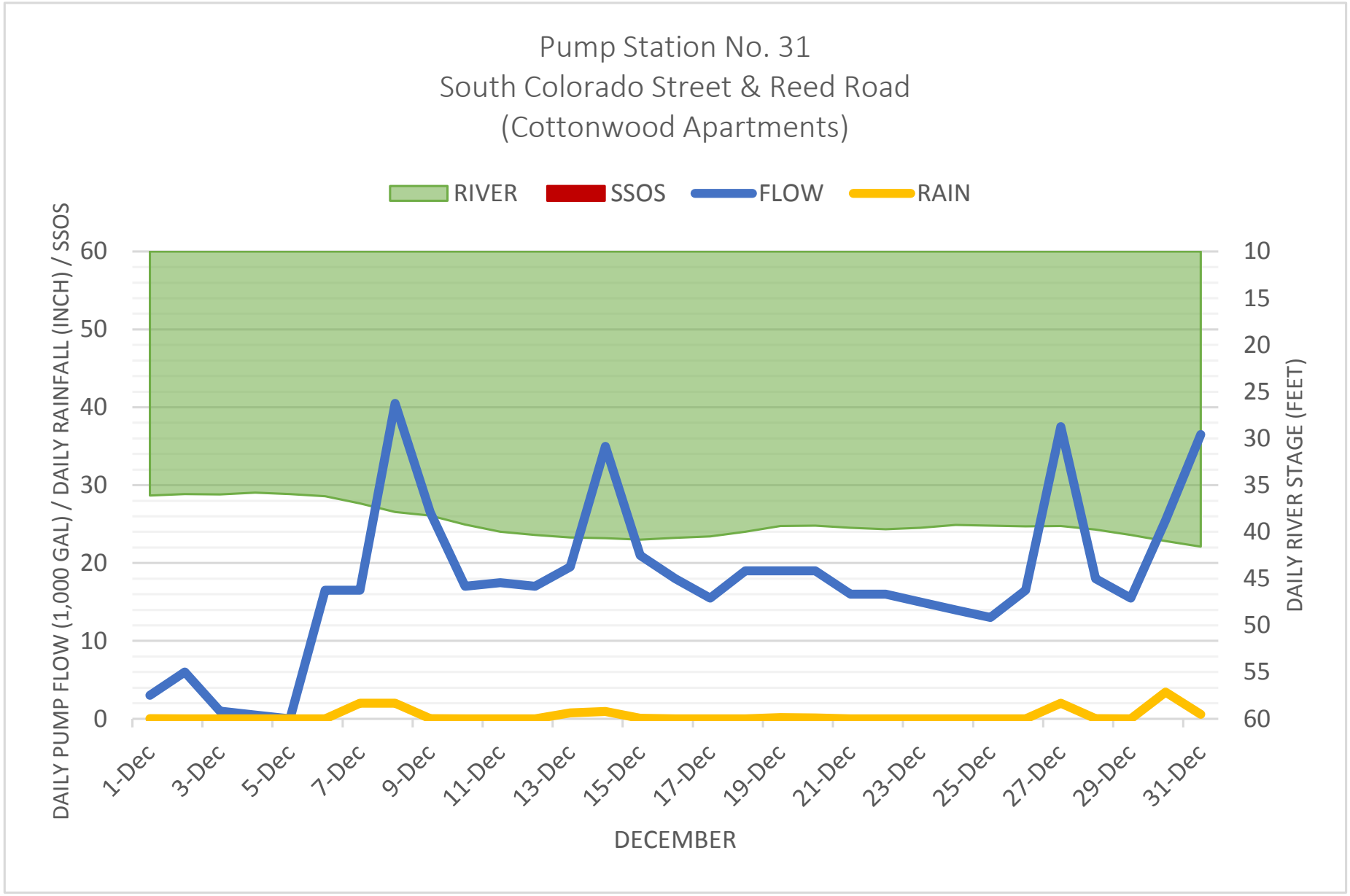
OCTOBER



NOTE: November 14th-20th, Pump repair station on temporary bypass


Pump Station No. 31
South Colorado Street & Reed Road
(Cottonwood Apartments)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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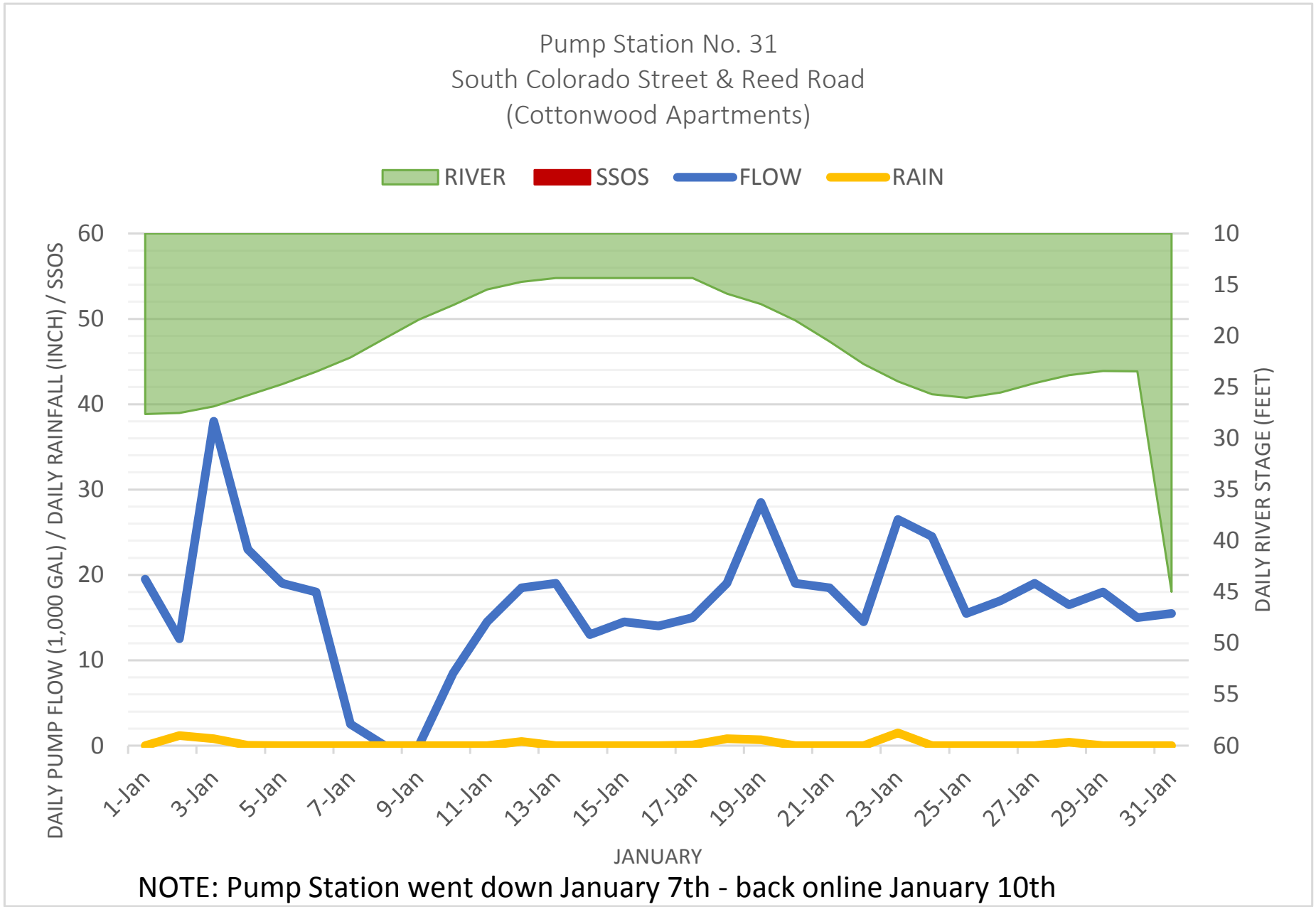
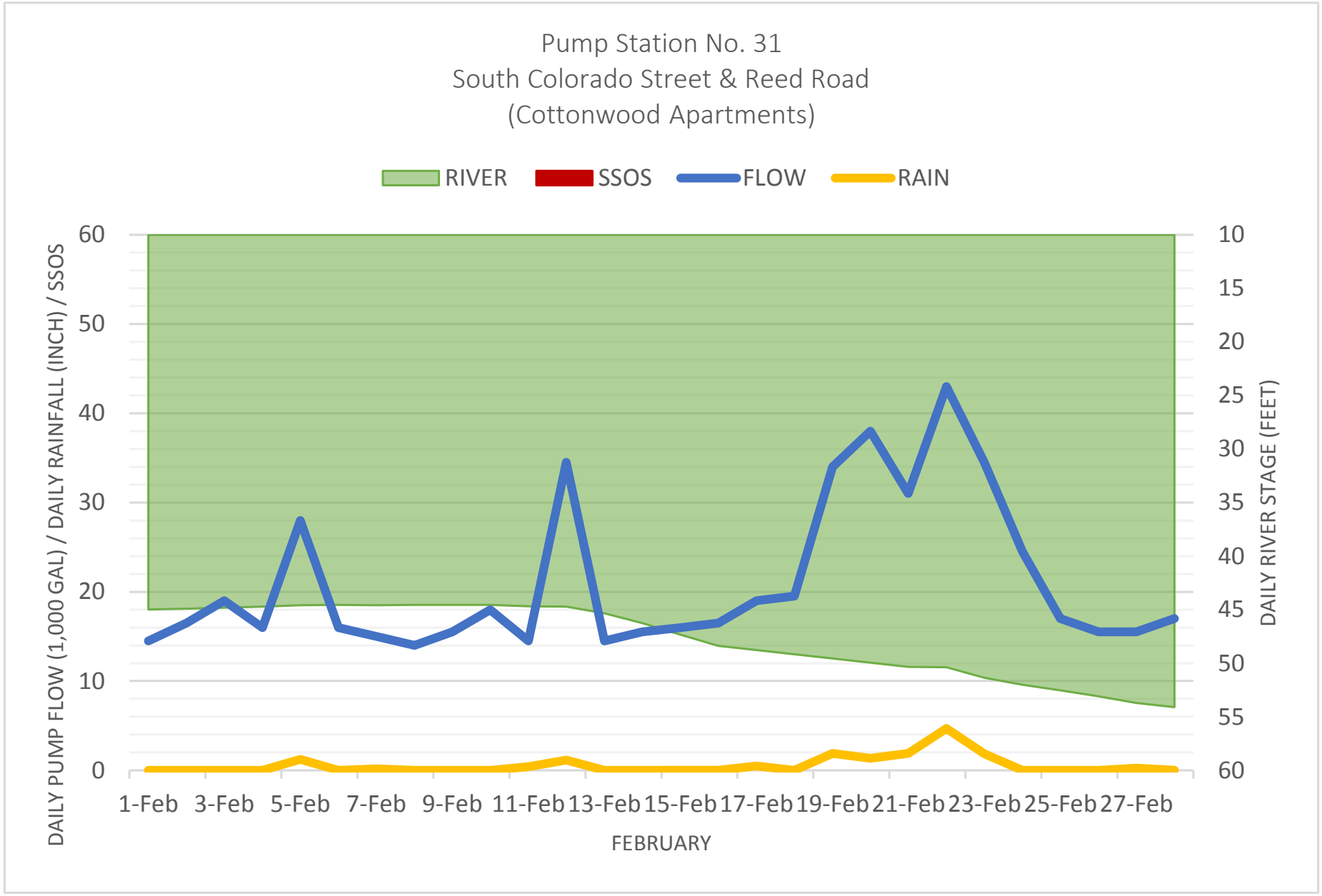
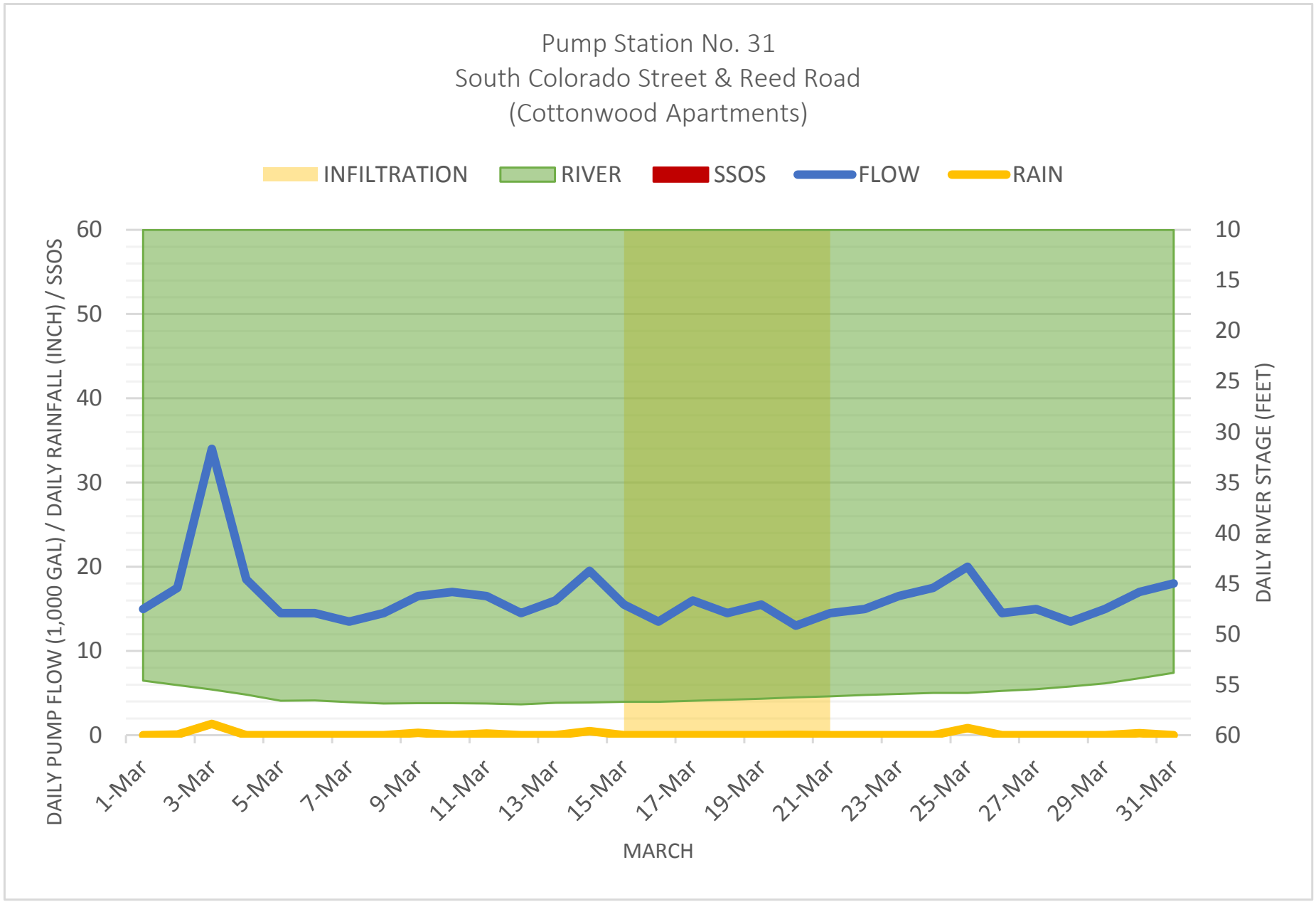
31-Dec
DECEMBER



NOTE: Pump Station went down January 7th - back online January 10th


Pump Station No. 31
South Colorado Street & Reed Road
(Cottonwood Apartments)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
60
50
40
30
20
10
0
10
15
20
25
30
35
40
45
50
55
60
1-Feb
3-Feb
5-Feb
7-Feb
9-Feb
11-Feb
13-Feb
15-Feb
17-Feb
19-Feb
21-Feb
23-Feb
25-Feb
27-Feb
FEBRUARY


Pump Station No. 31
South Colorado Street & Reed Road
(Cottonwood Apartments)
INFILTRATION
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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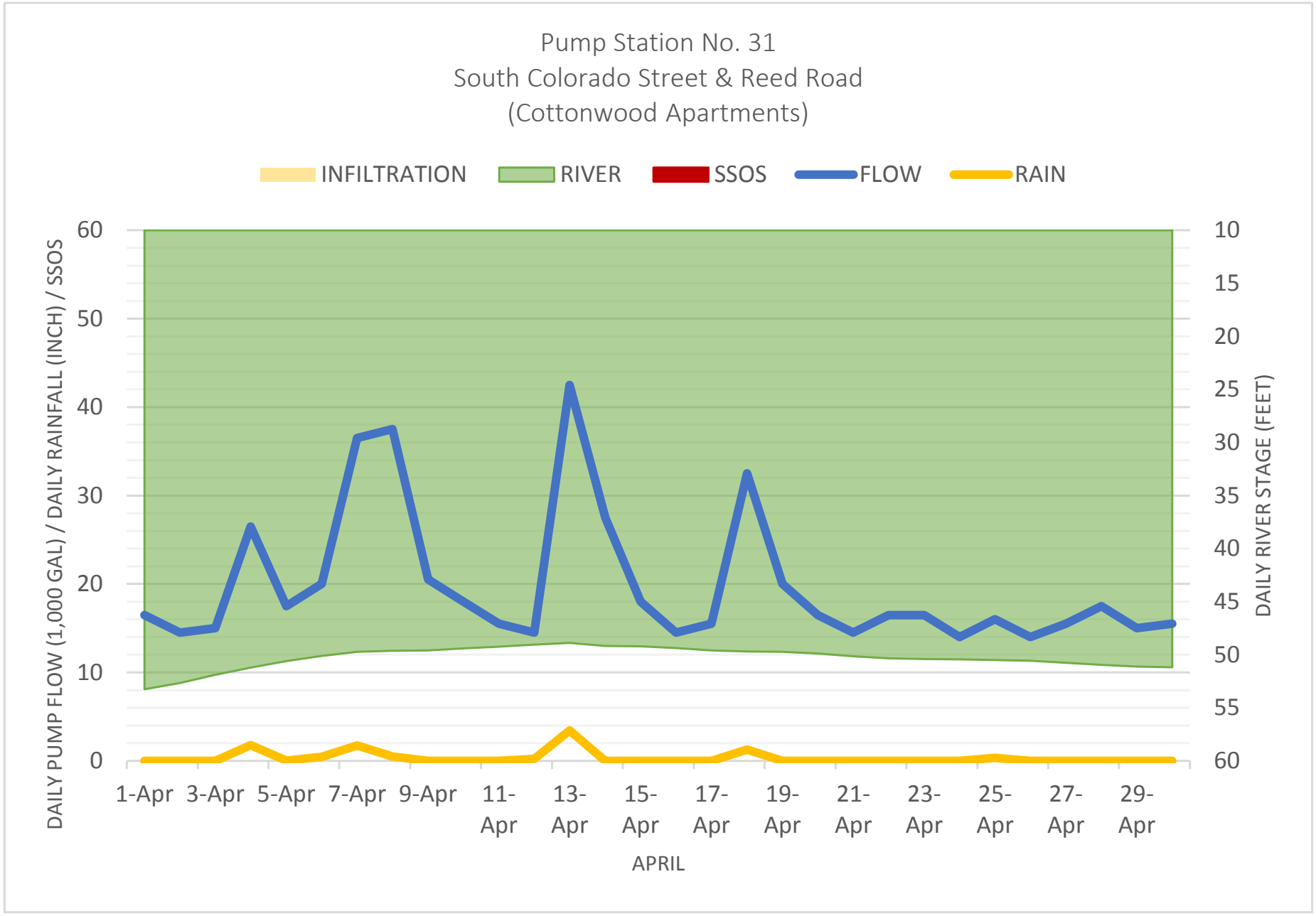
23-Mar
25-Mar
27-Mar
29-Mar
31-Mar
MARCH


Pump Station No. 31
South Colorado Street & Reed Road
(Cottonwood Apartments)
INFILTRATION
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
60
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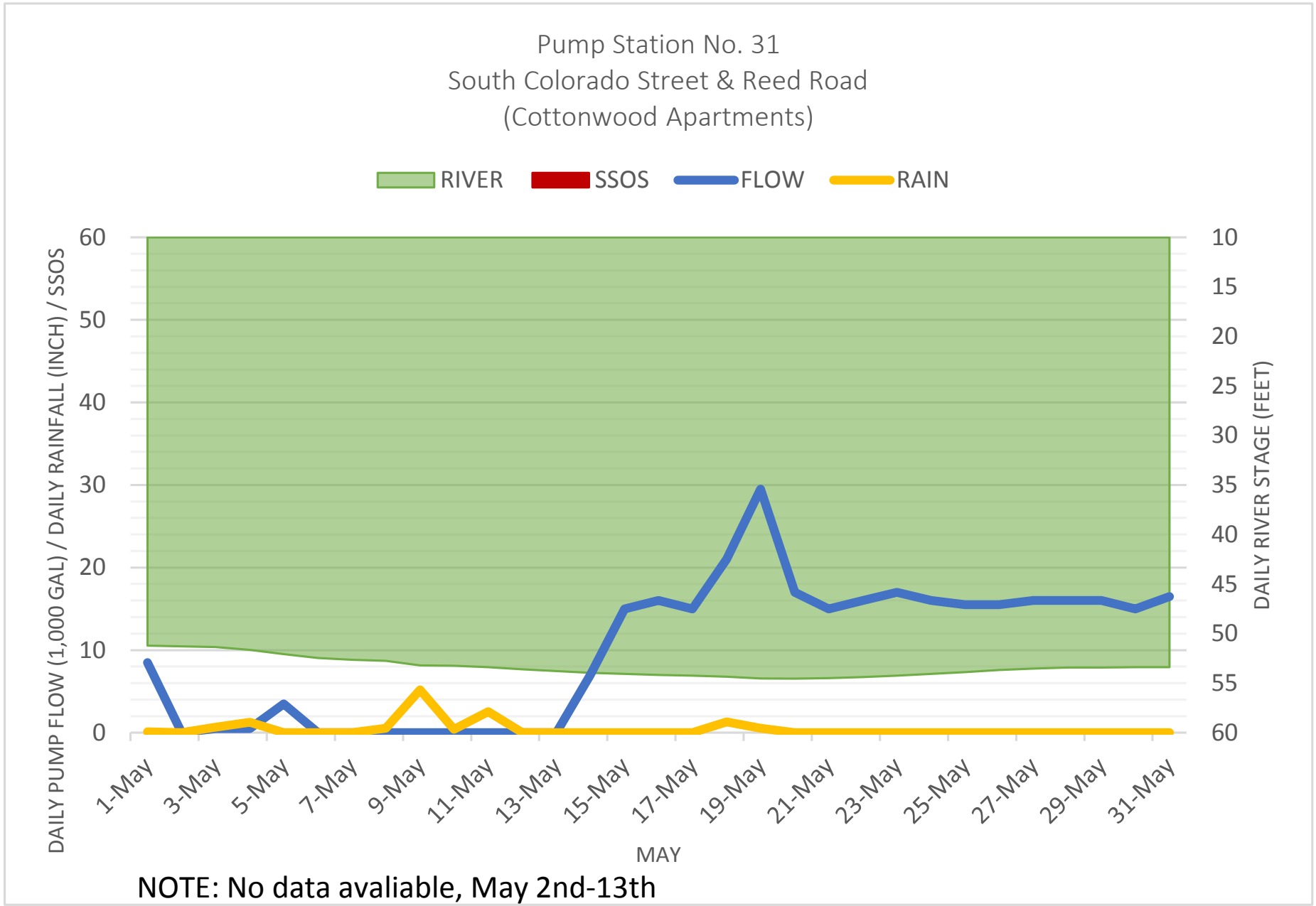
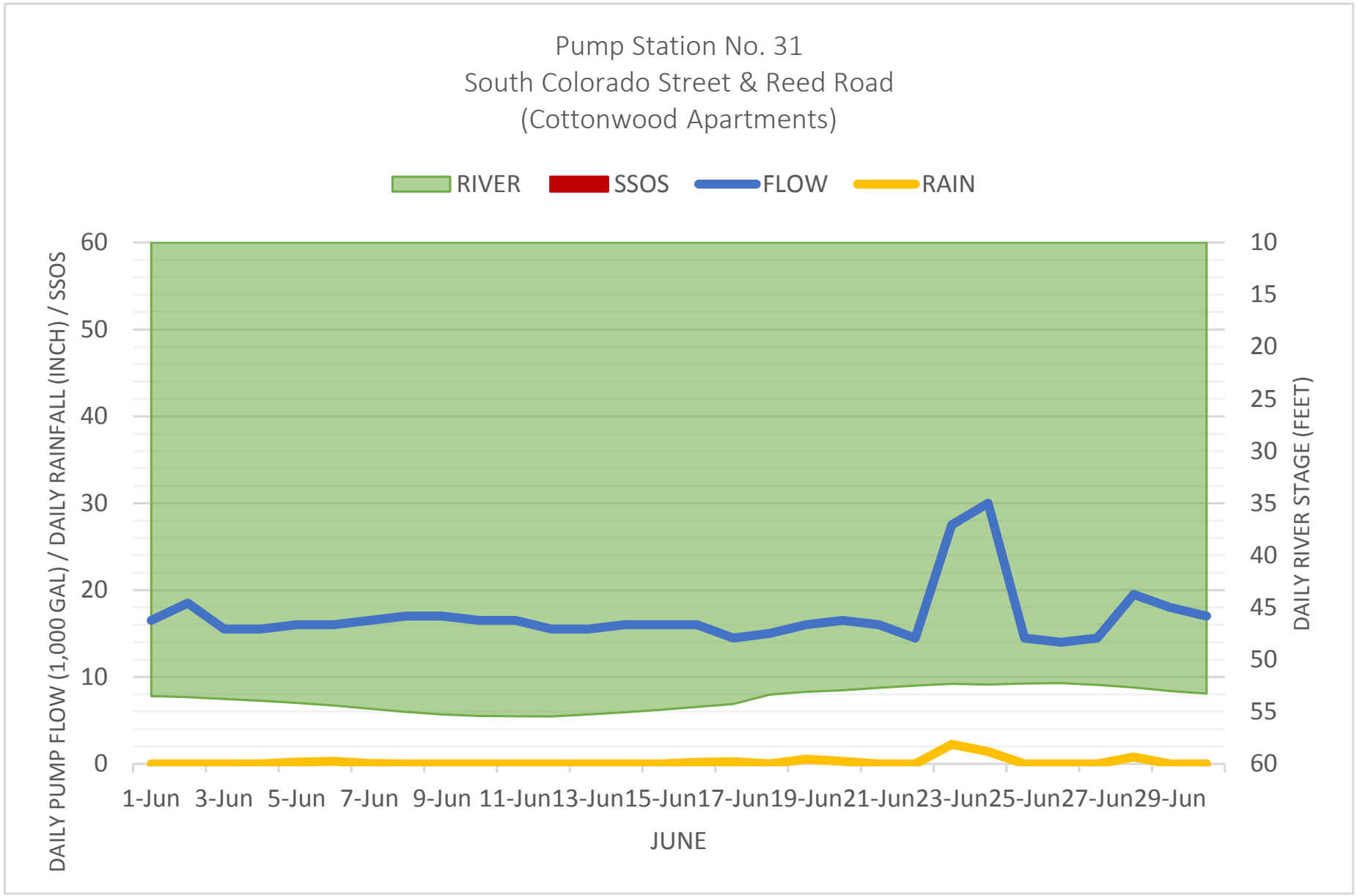
25-Apr
27-Apr
29-Apr
APRIL



NOTE: No data avaliable, May 2nd-13th


Pump Station No. 31
South Colorado Street & Reed Road
(Cottonwood Apartments)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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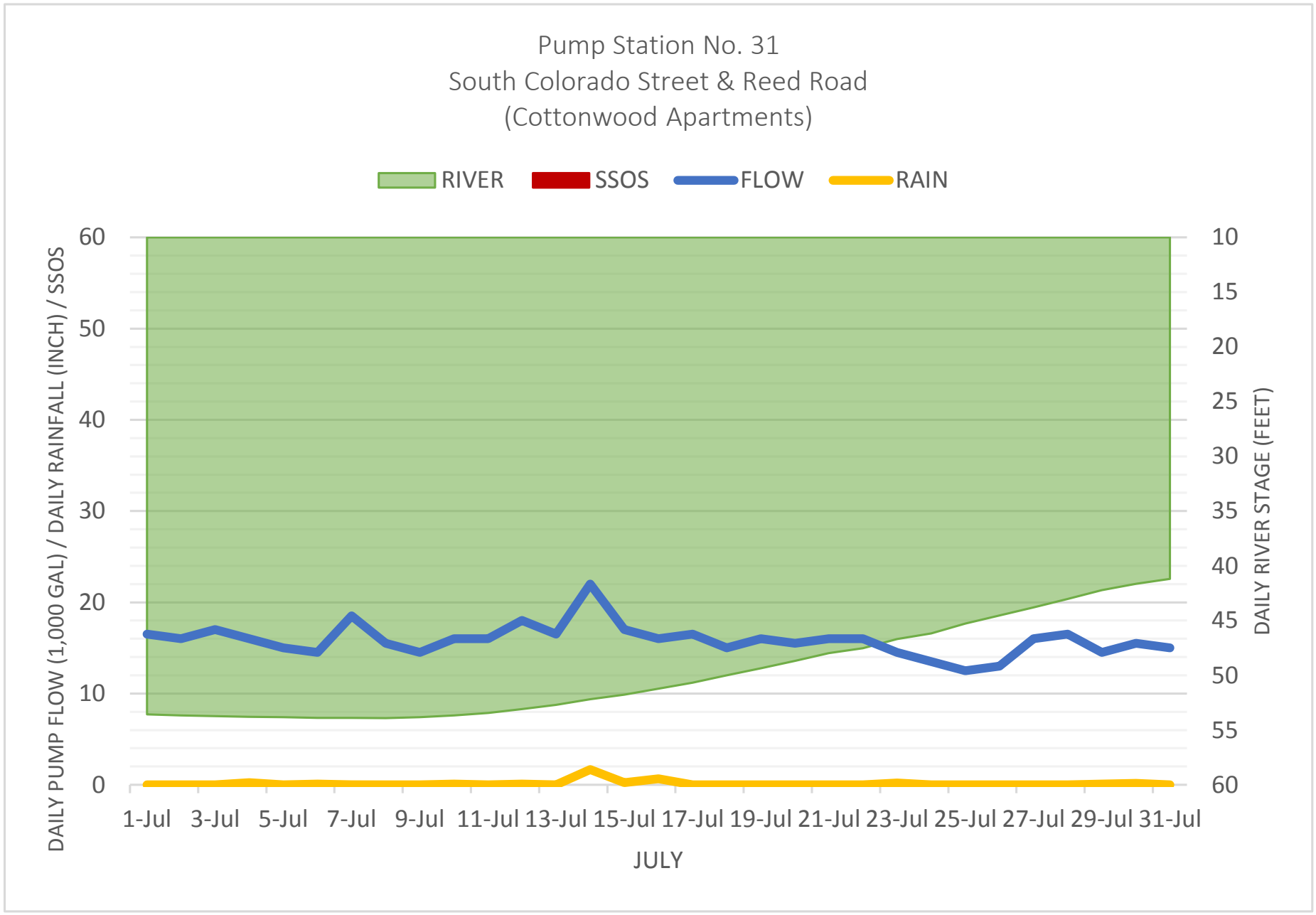
23-Jun
25-Jun
27-Jun
29-Jun
JUNE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South Colorado Street & Reed Road
(Cottonwood Apartments)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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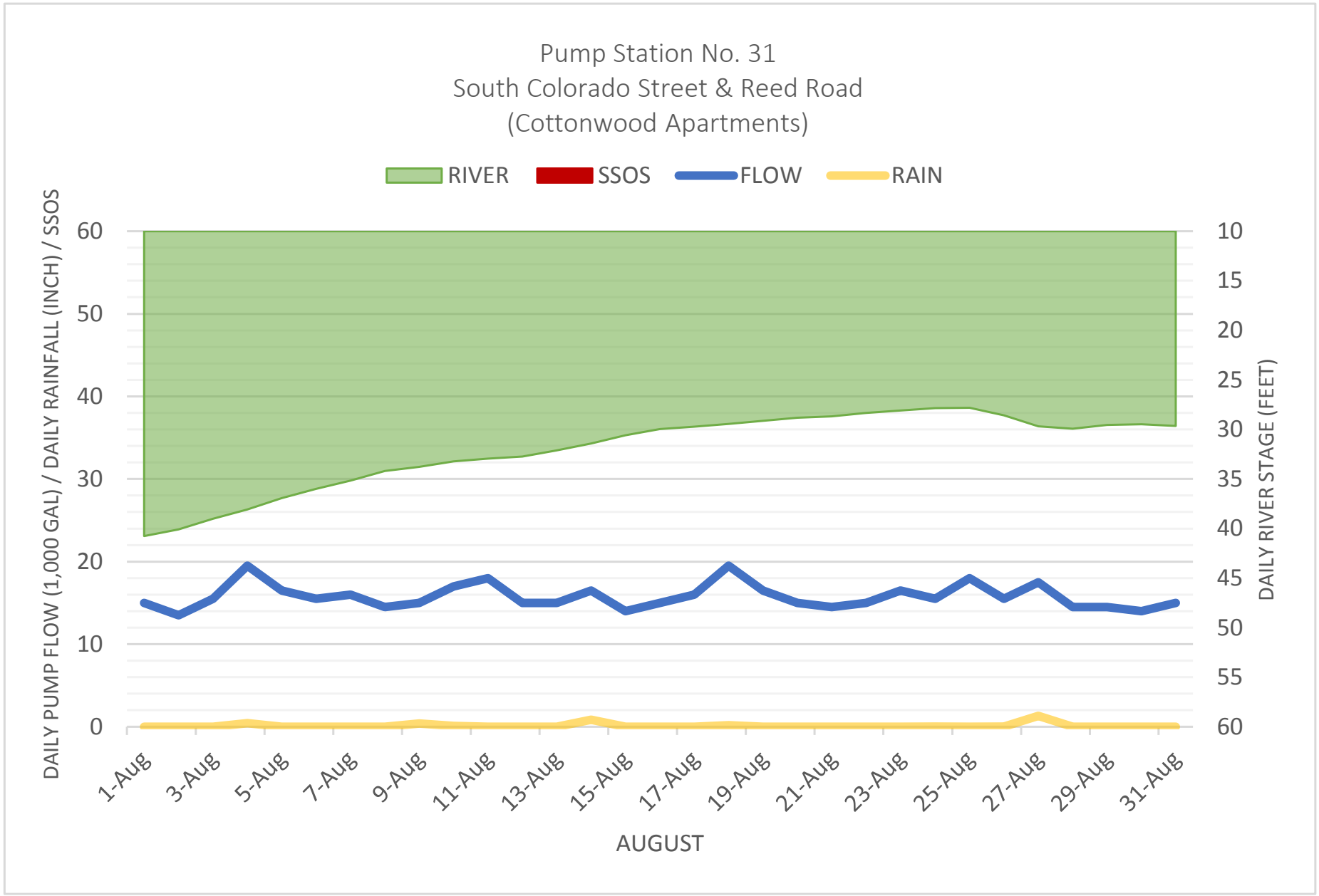
25-Jul
27-Jul
29-Jul
31-Jul
JULY


Pump Station No. 31
South Colorado Street & Reed Road
(Cottonwood Apartments)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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55
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1-Aug
3-Aug
5-Aug
7-Aug
9-Aug
11-Aug
13-Aug
15-Aug
17-Aug
19-Aug
21-Aug
23-Aug
25-Aug
27-Aug
29-Aug
31-Aug
AUGUST

APPENDIX 31

MS22-A/PS79 I/I WORKSHEET

MS22-A/PS79
INFLOW & INFILTRATION WORKSHEET

Infiltration

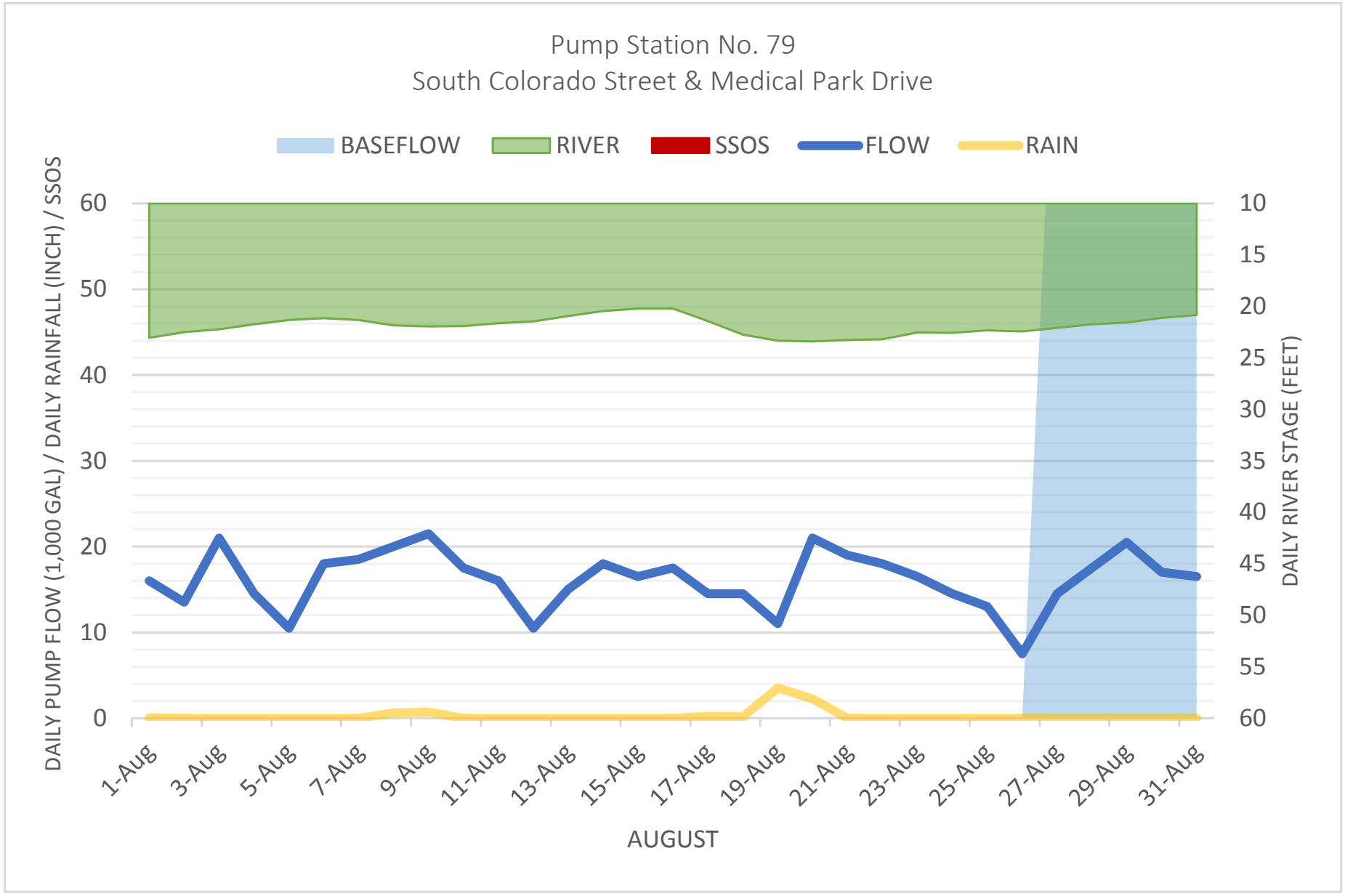
	feet	miles	diameter	INCH-DIAMETER MILES	
8" GRAVITY	1863	0.35	8	2.822727	
6" LATERALS	685	0.13	6	0.778409	
4" LATERALS	225	0.04	4	0.170455	
TOTAL PIPE	2548				
				3.771591	**total inch-miles in system**
		average maximum infiltration	inch-miles		
		4,428.5714	3.77	**1174.192**	**total gpd/idm**

Inflow

	feet	miles	diameter	INCH-DIAMETER MILES	
8" Gravity	1863	0.35	8	2.822727	
6" Laterals	685	0.13	6	0.778409	
4" Laterals	225	0.04	4.00	0.170455	
				3.771591	**total inch-miles in system**
		average maximum inflow	inch-miles		
		7,928.5714	3.77	**2102.182**	**total gpd/idm**

APPENDIX 32

MS22-A/PS79 GRAPHS


Pump Station No. 79
South Colorado Street & Medical Park Drive
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
60
50
40
30
20
10
0
10
15
20
25
30
35
40
45
50
55
60
1-Aug
3-Aug
5-Aug
7-Aug
9-Aug
11-Aug
13-Aug
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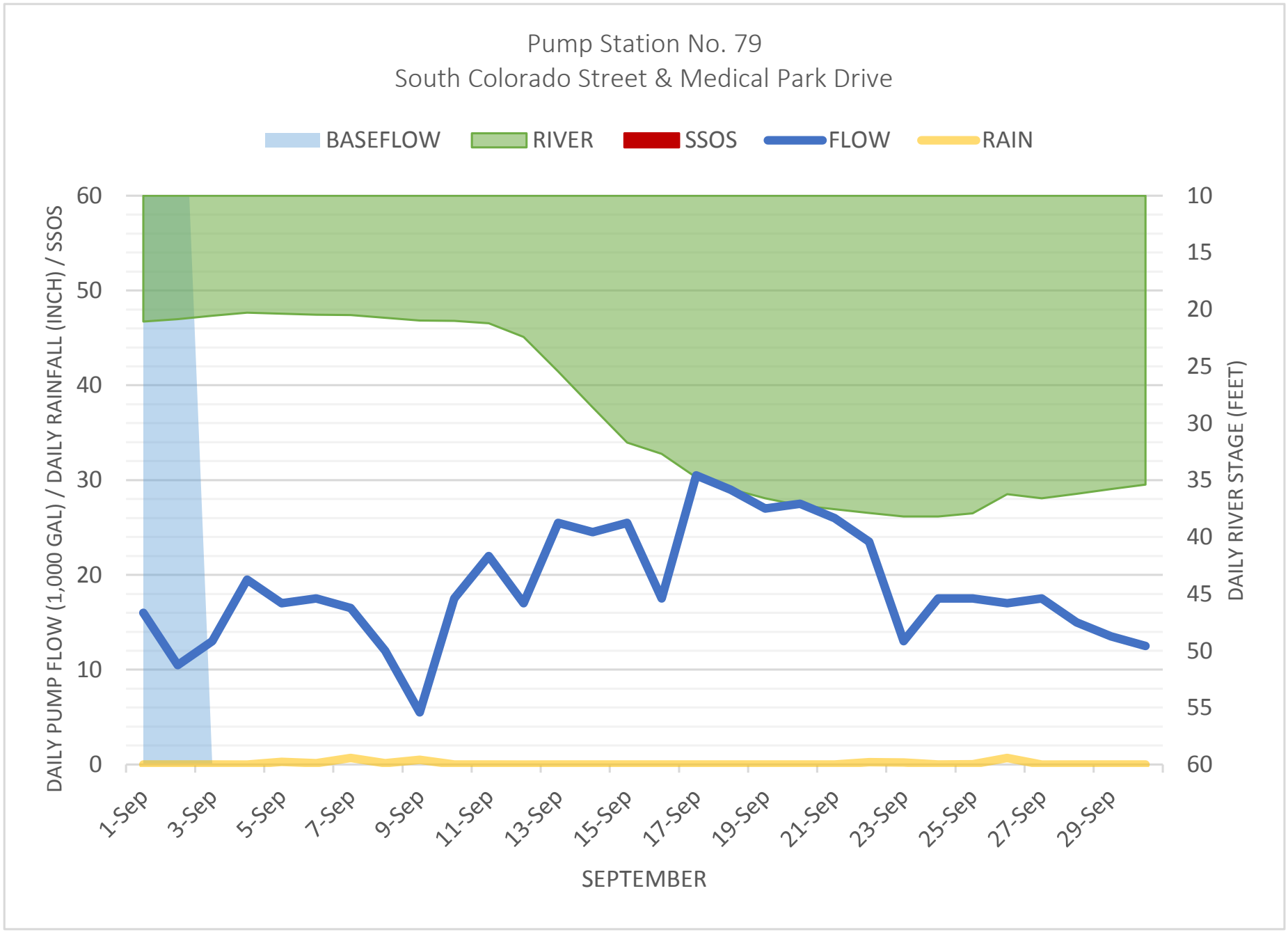
21-Aug
23-Aug
25-Aug
27-Aug
29-Aug
31-Aug
AUGUST


Pump Station No. 79
South Colorado Street & Medical Park Drive
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
60
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7-Sep
9-Sep
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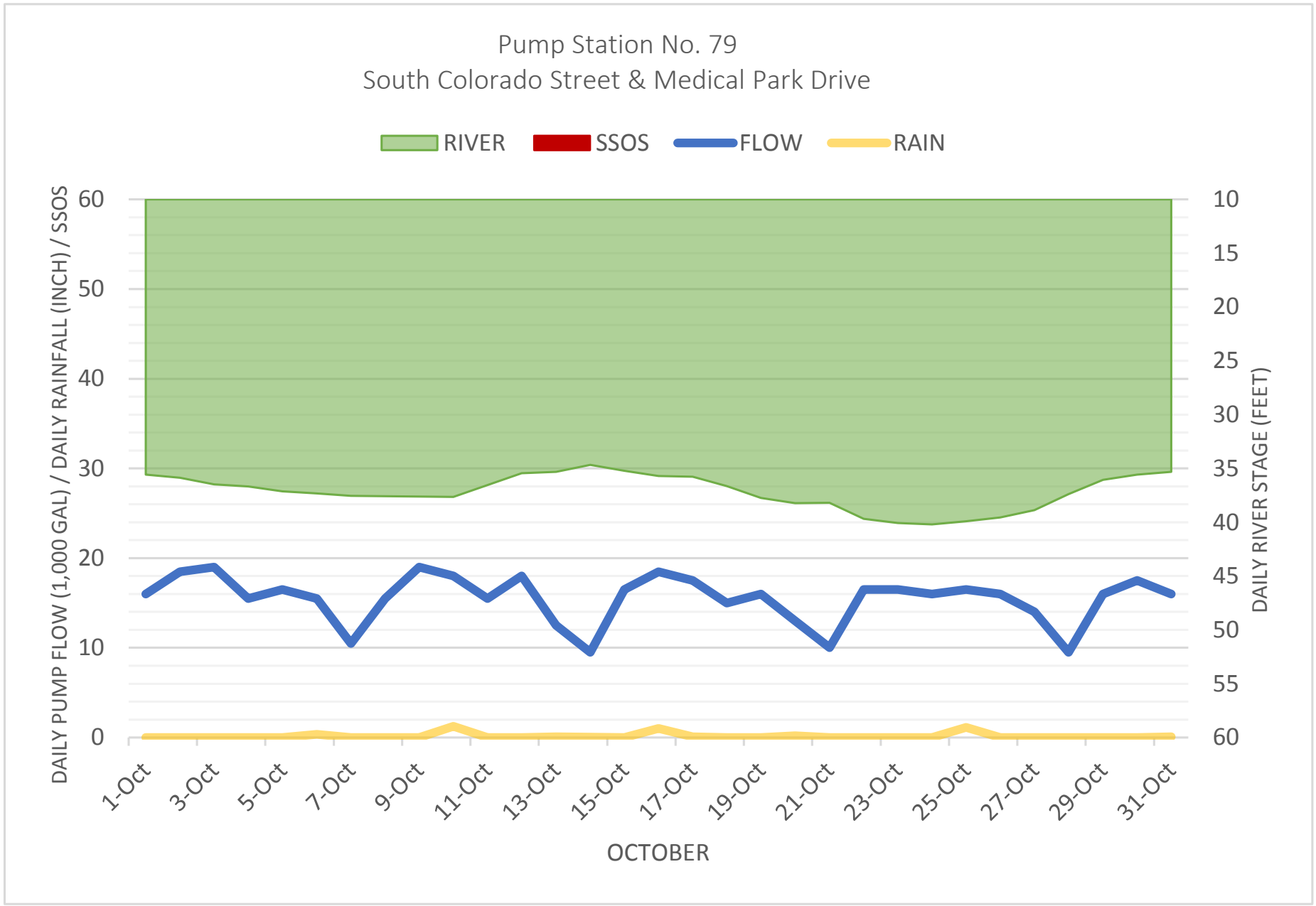
19-Sep
21-Sep
23-Sep
25-Sep
27-Sep
29-Sep
SEPTEMBER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South Colorado Street & Medical Park Drive
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
60
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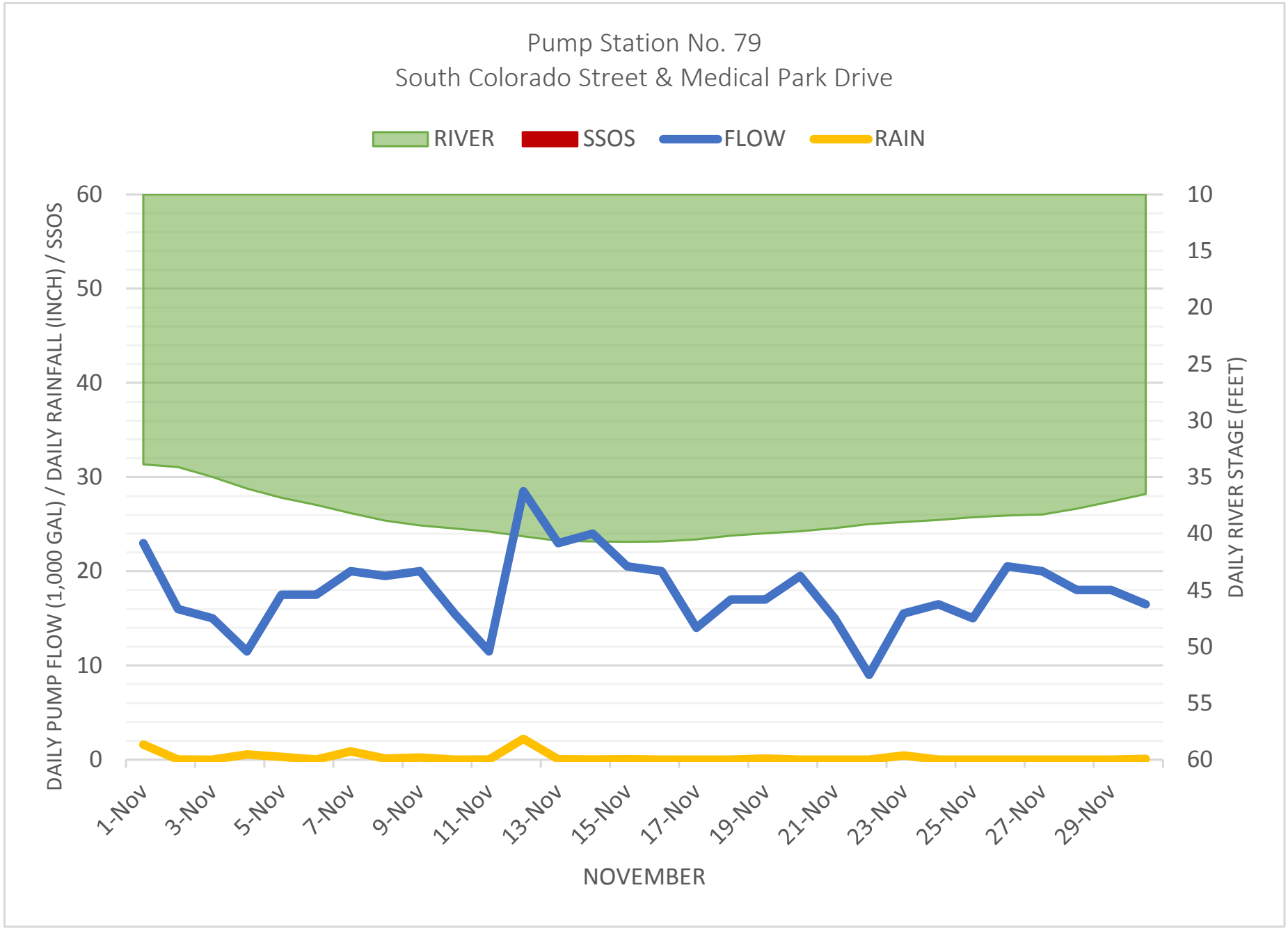
29-Oct
31-Oct
OCTOBER


Pump Station No. 79
South Colorado Street & Medical Park Drive
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
60
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1-Nov
3-Nov
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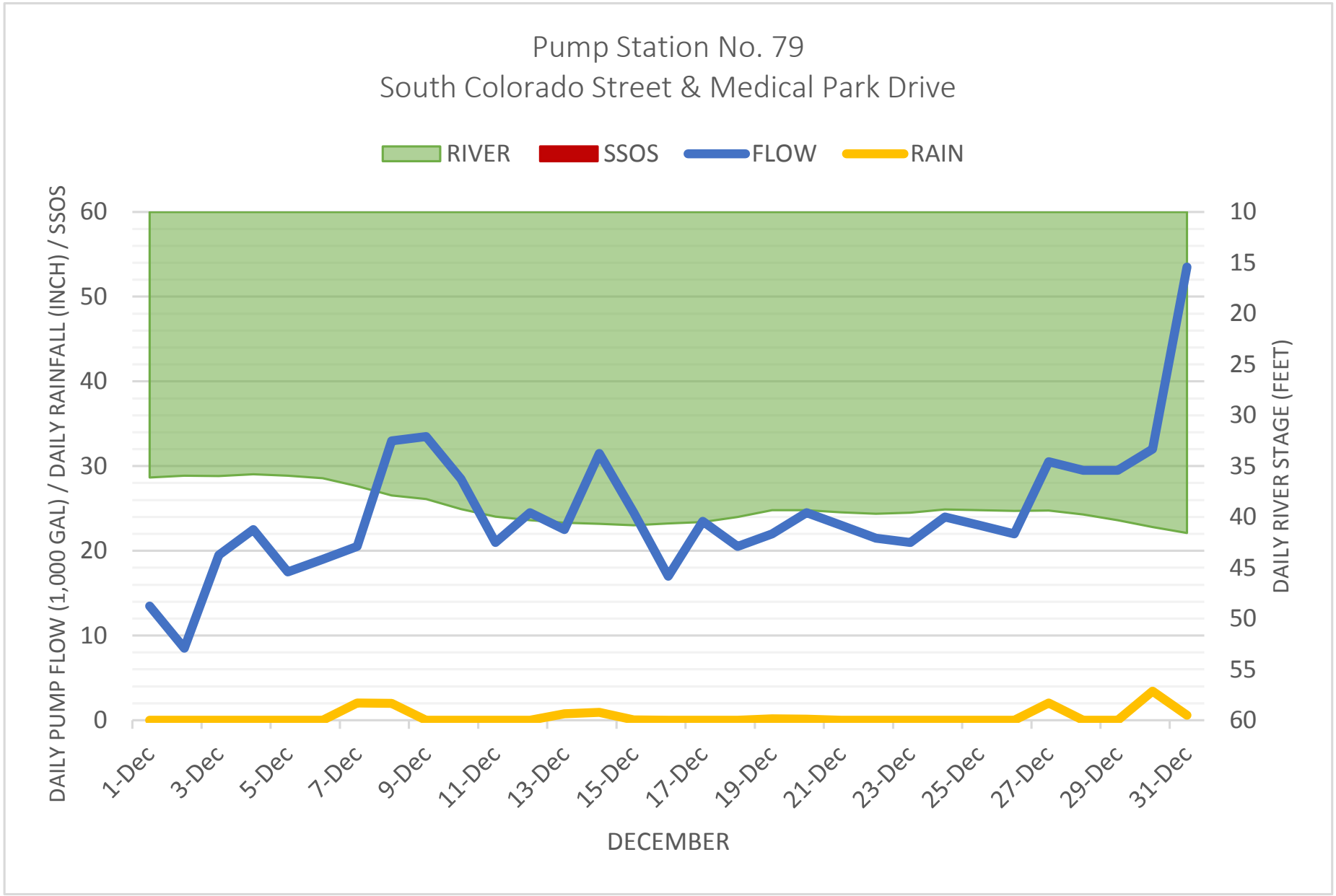
25-Nov
27-Nov
29-Nov
NOVEMBER


Pump Station No. 79
South Colorado Street & Medical Park Drive
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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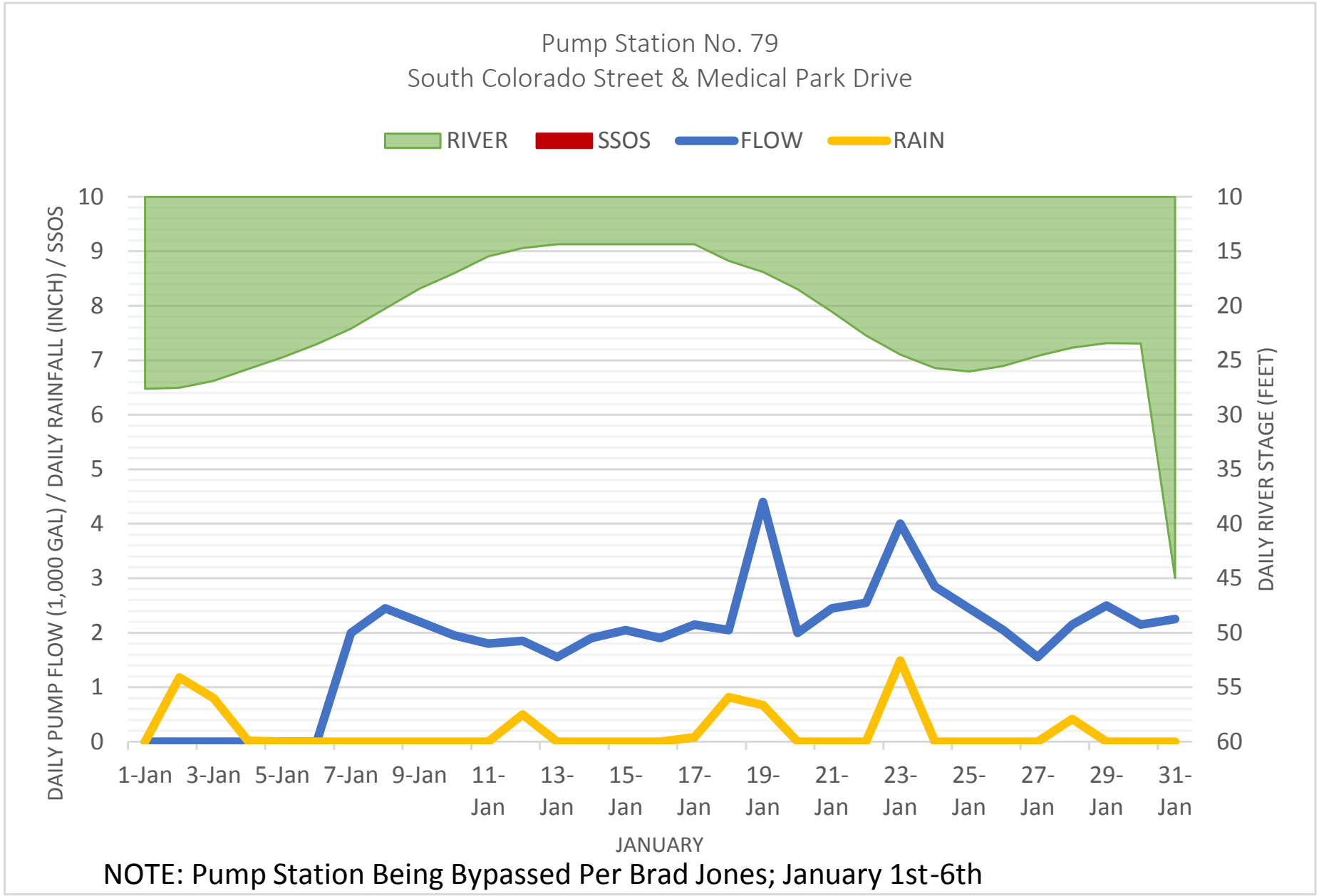
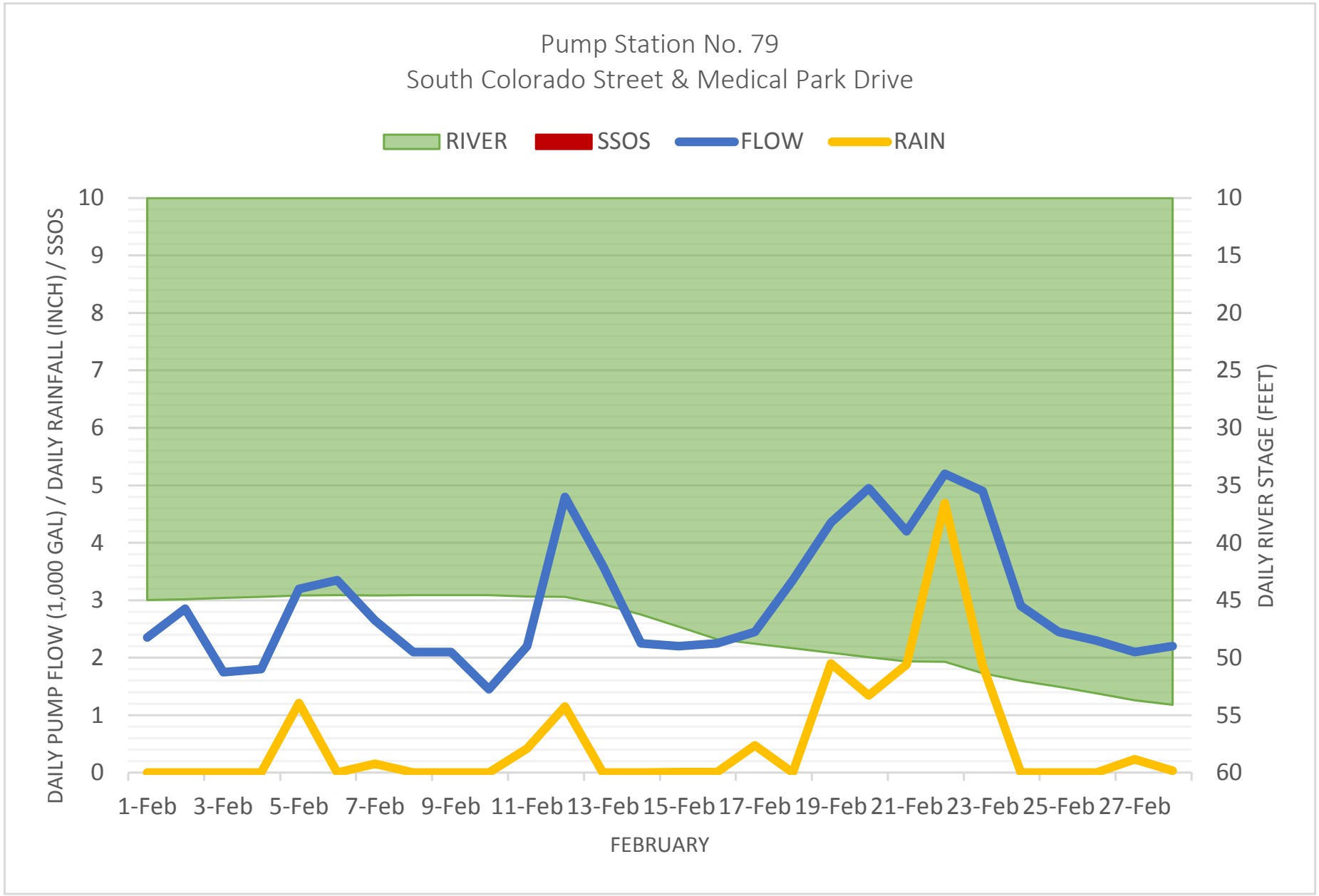
31-Dec
DECEMBER



NOTE: Pump Station Being Bypassed Per Brad Jones; January 1st-6th


Pump Station No. 79
South Colorado Street & Medical Park Drive
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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17-Feb
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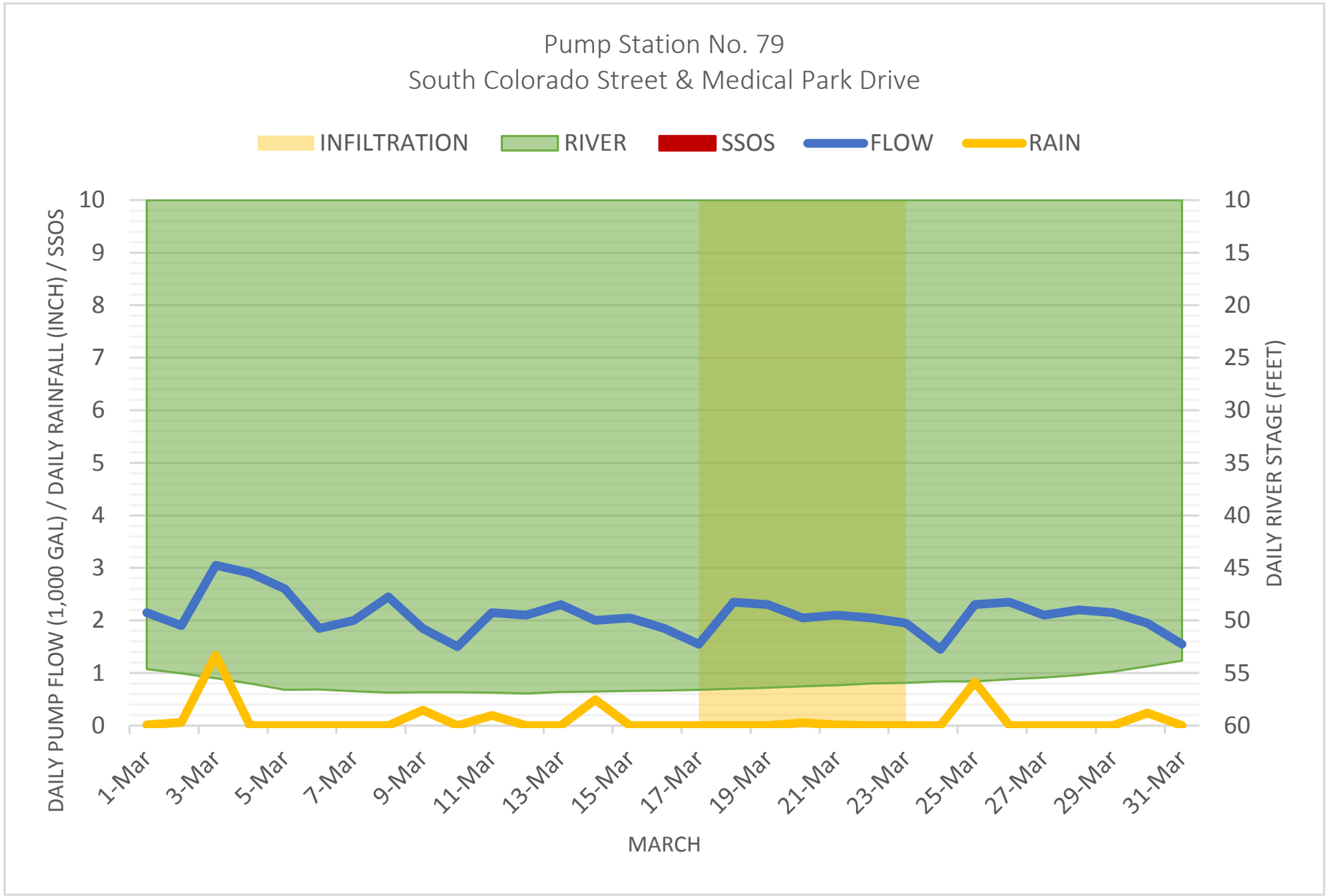
23-Feb
25-Feb
27-Feb
FEBRUARY


Pump Station No. 79
South Colorado Street & Medical Park Drive
INFILTRATION
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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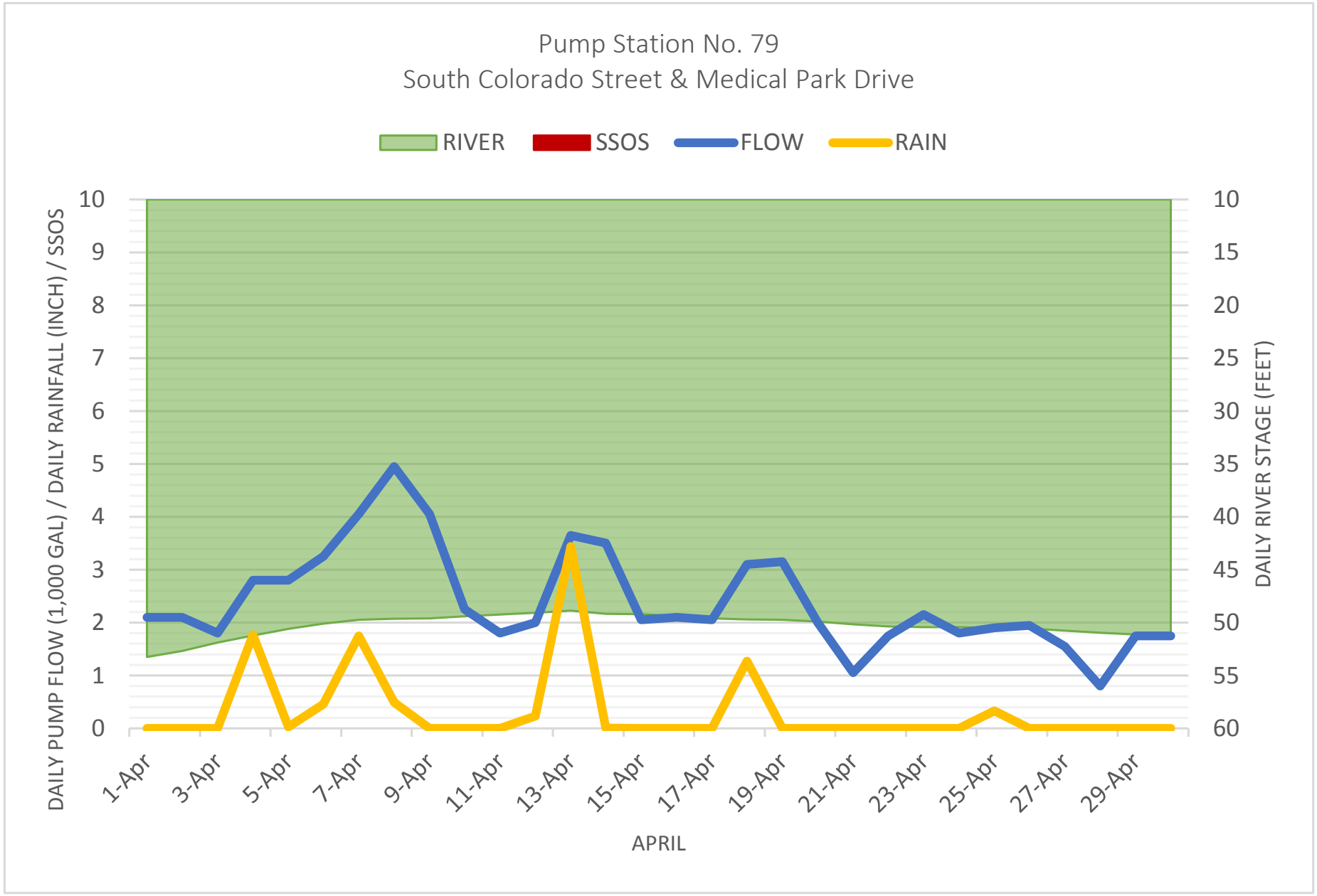
31-Mar
MARCH


Pump Station No. 79
South Colorado Street & Medical Park Drive
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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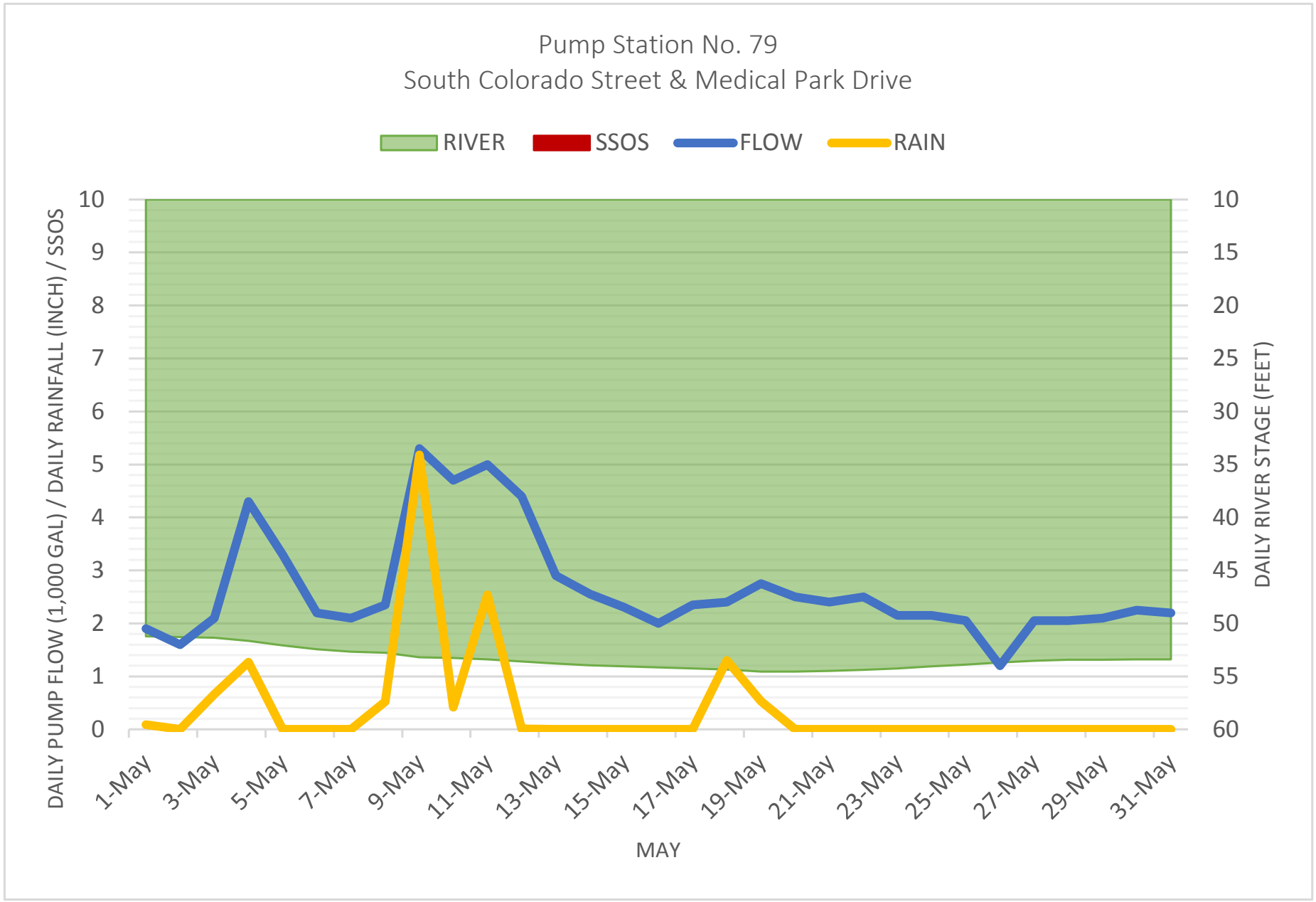
27-Apr
29-Apr
APRIL


Pump Station No. 79
South Colorado Street & Medical Park Drive
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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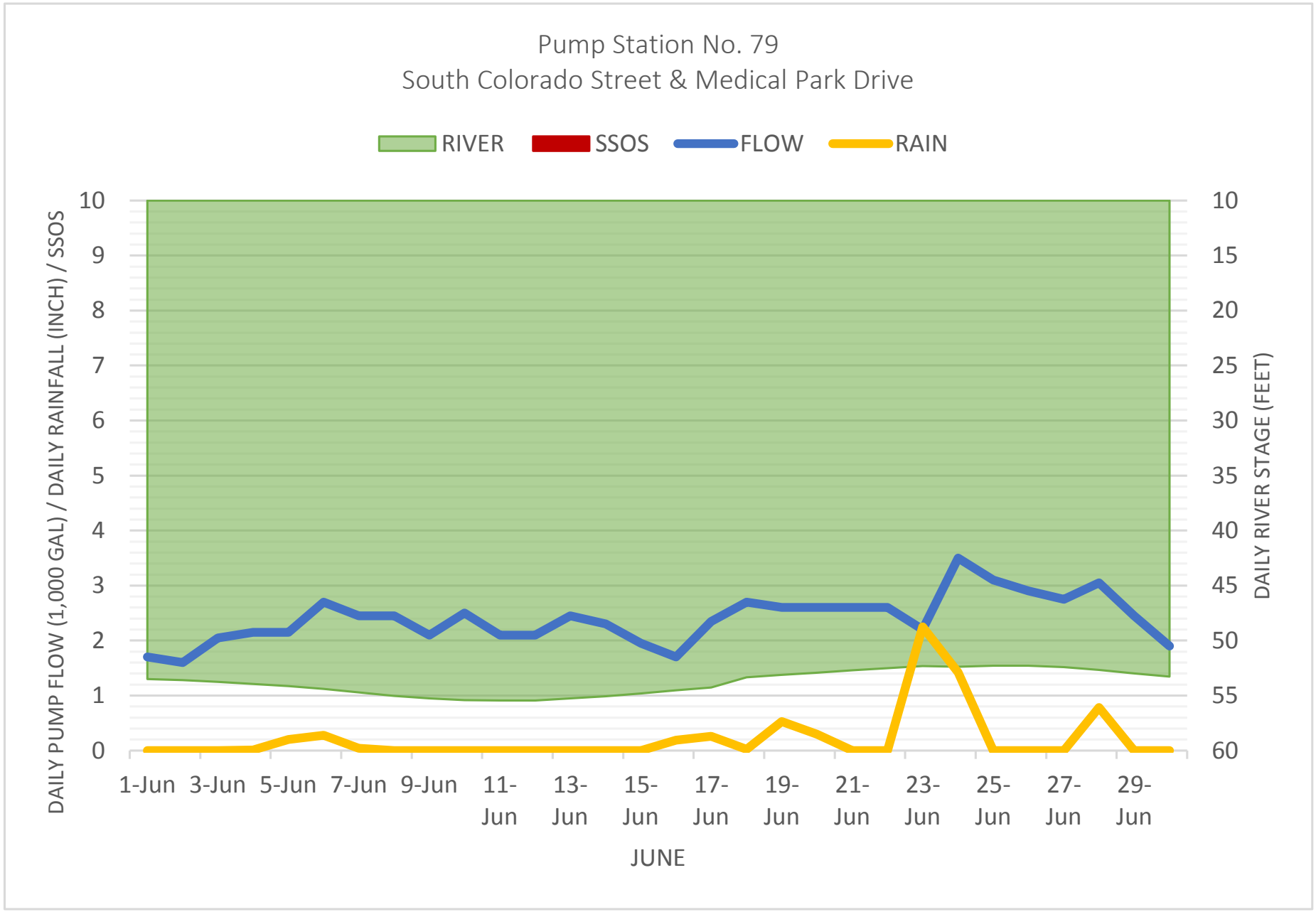
MAY


Pump Station No. 79
South Colorado Street & Medical Park Drive
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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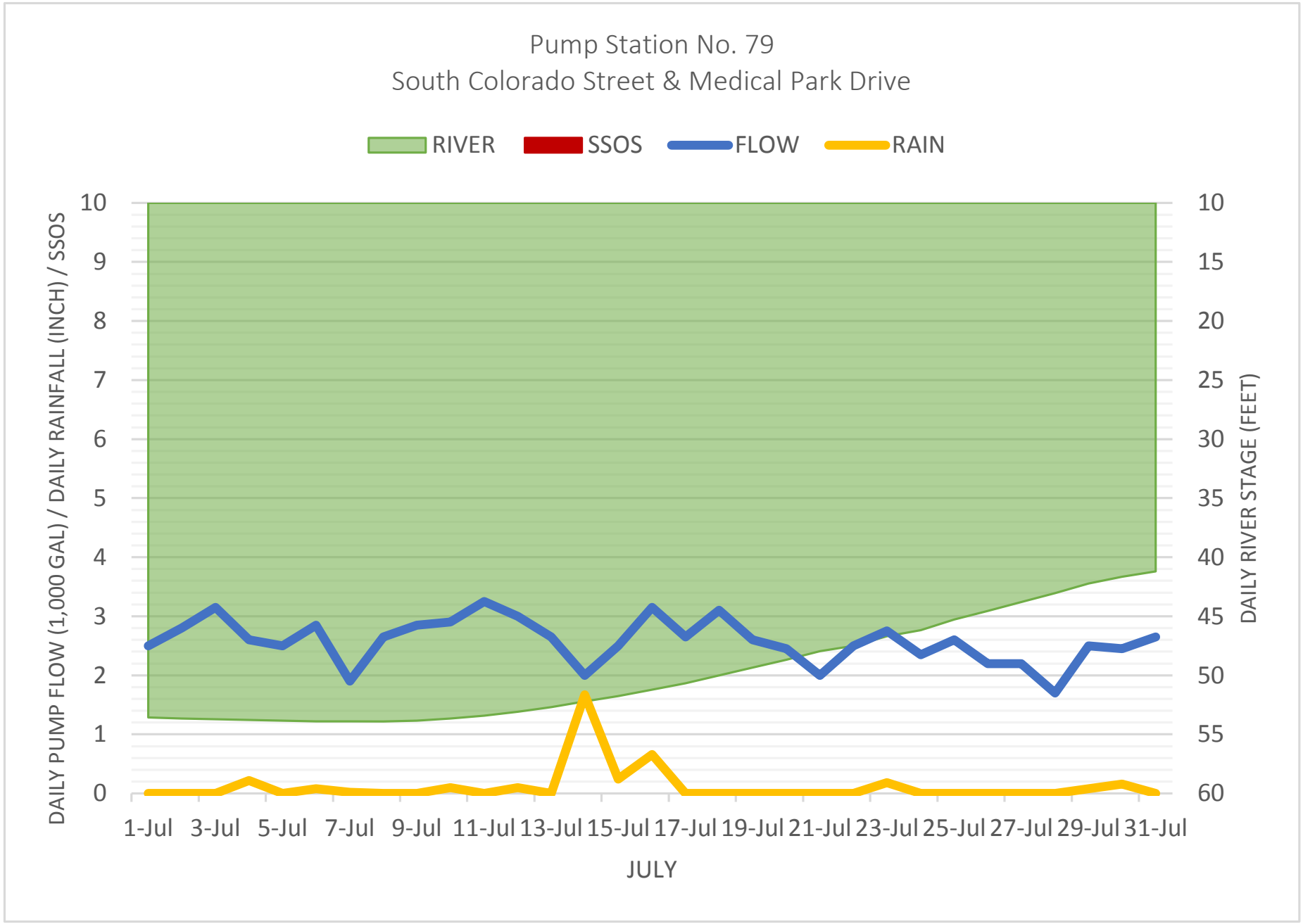
29-Jun
JUNE


Pump Station No. 79
South Colorado Street & Medical Park Drive
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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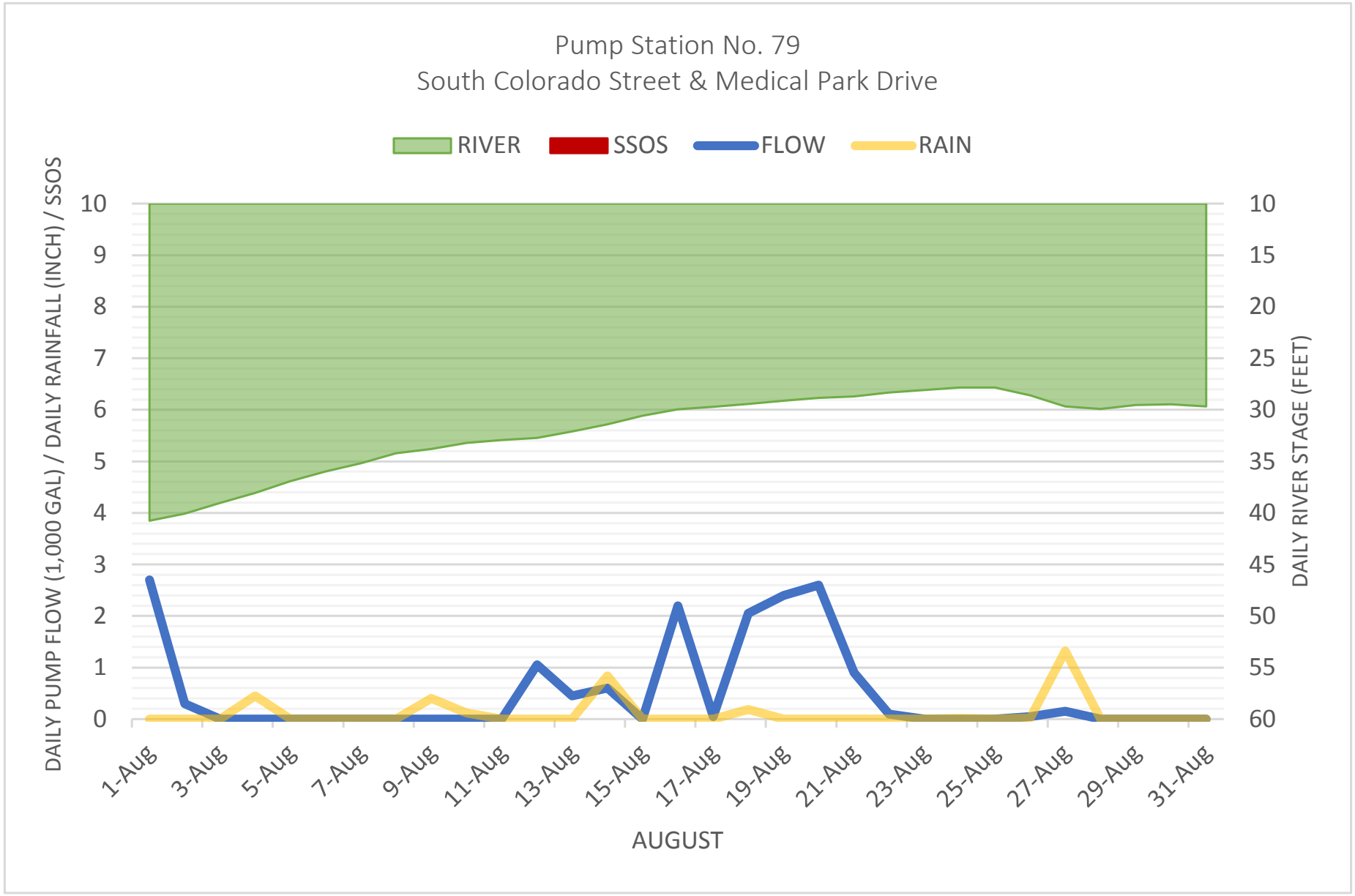
JULY


Pump Station No. 79
South Colorado Street & Medical Park Drive
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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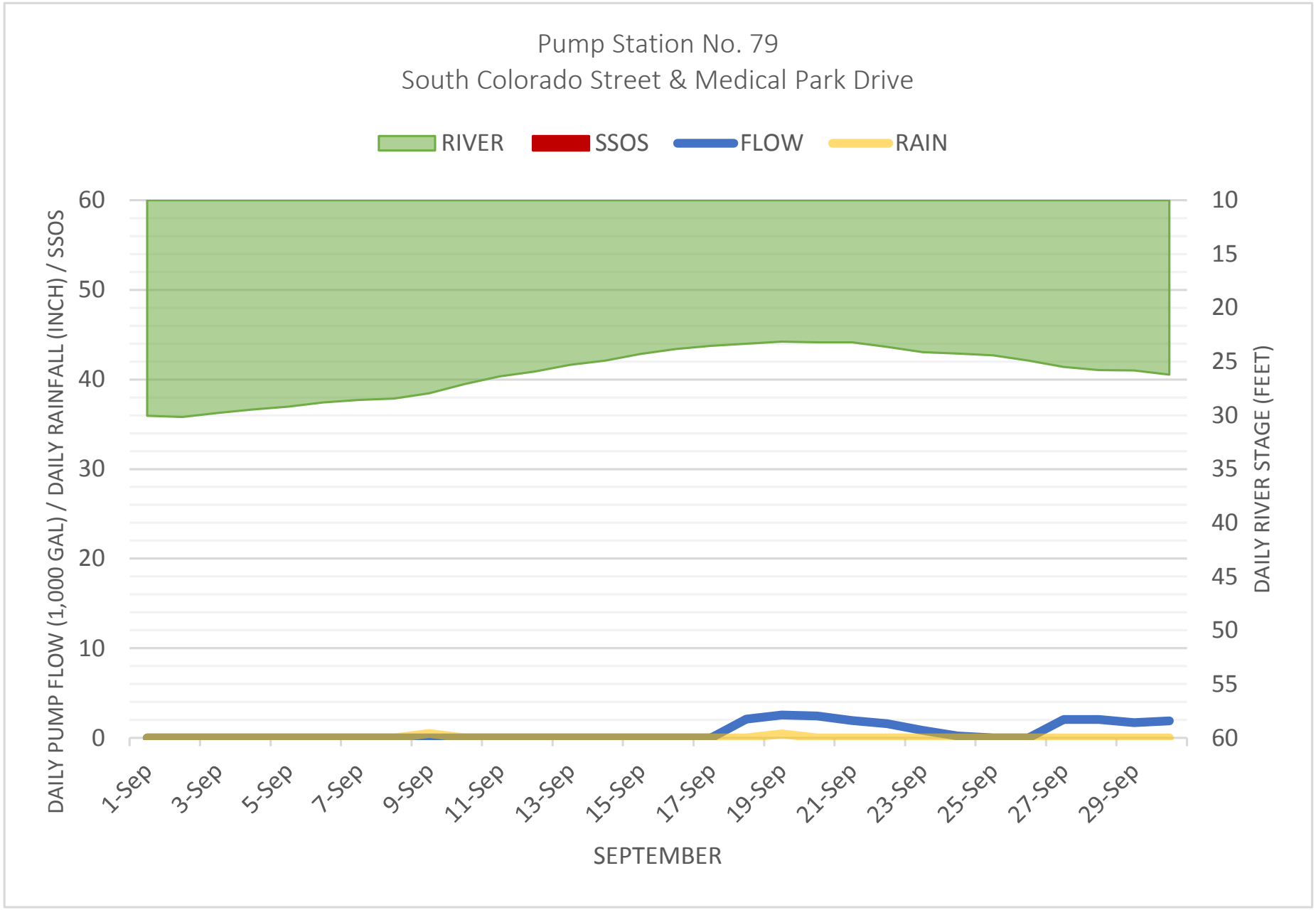
29-Aug
31-Aug
AUGUST


Pump Station No. 79
South Colorado Street & Medical Park Drive
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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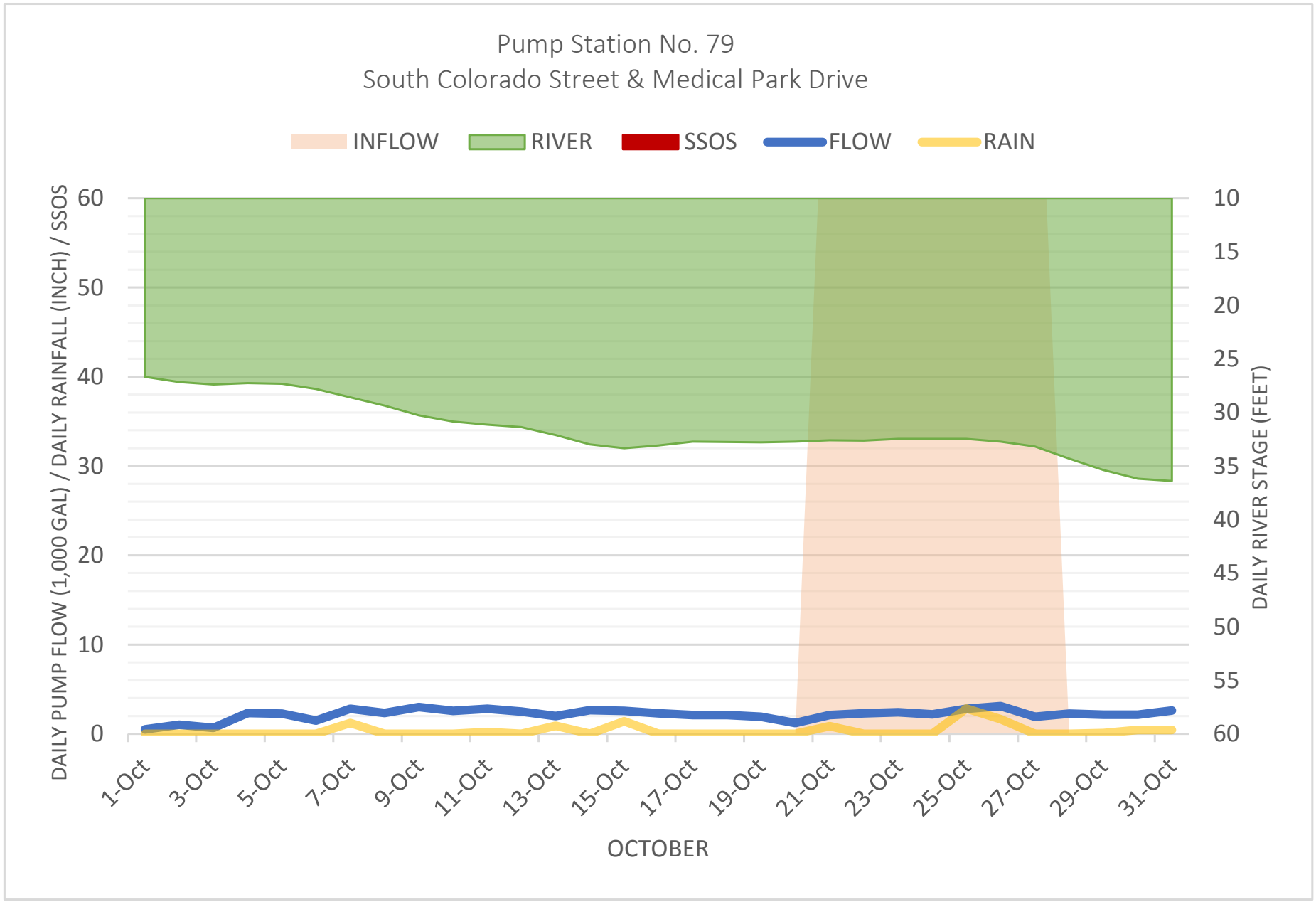
29-Sep
SEPTEMBER


Pump Station No. 79
South Colorado Street & Medical Park Drive
INFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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1-Oct
3-Oct
5-Oct
7-Oct
9-Oct
11-Oct
13-Oct
15-Oct
17-Oct
19-Oct
21-Oct
23-Oct
25-Oct
27-Oct
29-Oct
31-Oct
OCTOBER

APPENDIX 33

MS22-B/PS30 I/I WORKSHEET

MS22-B/PS30
INFLOW & INFILTRATION WORKSHEET

Infiltration

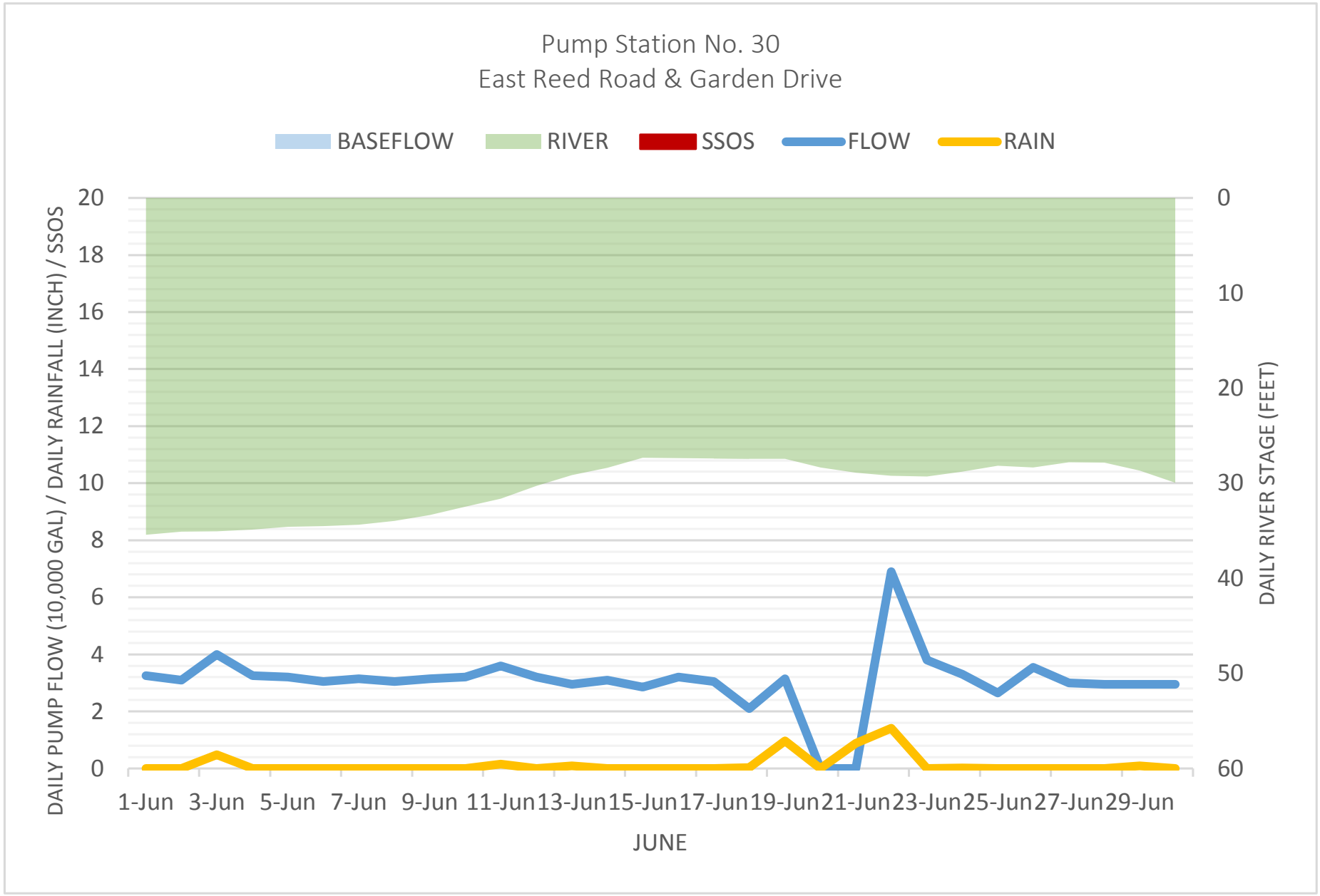
	feet	miles	diameter	inch-miles	
8" Gravity	10293	1.95	8	15.59545	
laterals	15600	2.95	4	11.81818	
				27.41364	**total inch-miles in system**
		maximum average infiltration	inch-miles		
		13,785.7143	27.41	**502.878**	**total gpd/idm**

Inflow

	feet	miles	diameter	inch-miles	
8" Gravity	10293	1.95	8.00	15.59545	
laterals	15600	2.95	4.00	11.81818	
TOTAL	25893				
				27.41364	**total inch-miles in system**
		maximum average inflow	inch-miles		
		59,428.5714	27.41	**2167.847**	**total gpd/idm**

APPENDIX 34

MS22-B/PS30 GRAPHS


Pump Station No. 30
East Reed Road & Garden Drive
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
20
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1-Jun
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9-Jun
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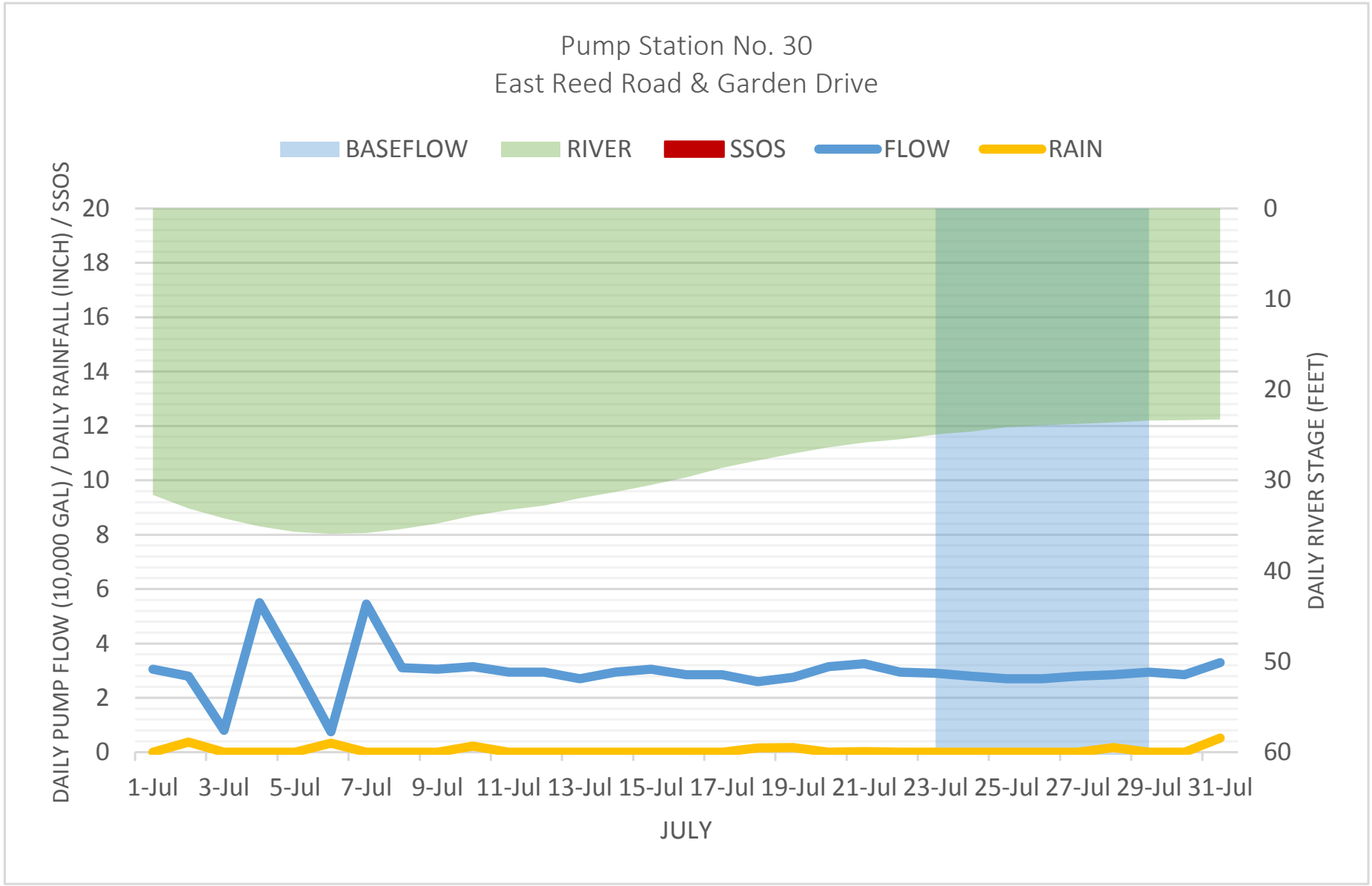
19-Jun
21-Jun
23-Jun
25-Jun
27-Jun
29-Jun
JUNE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East Reed Road & Garden Drive
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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1-Jul
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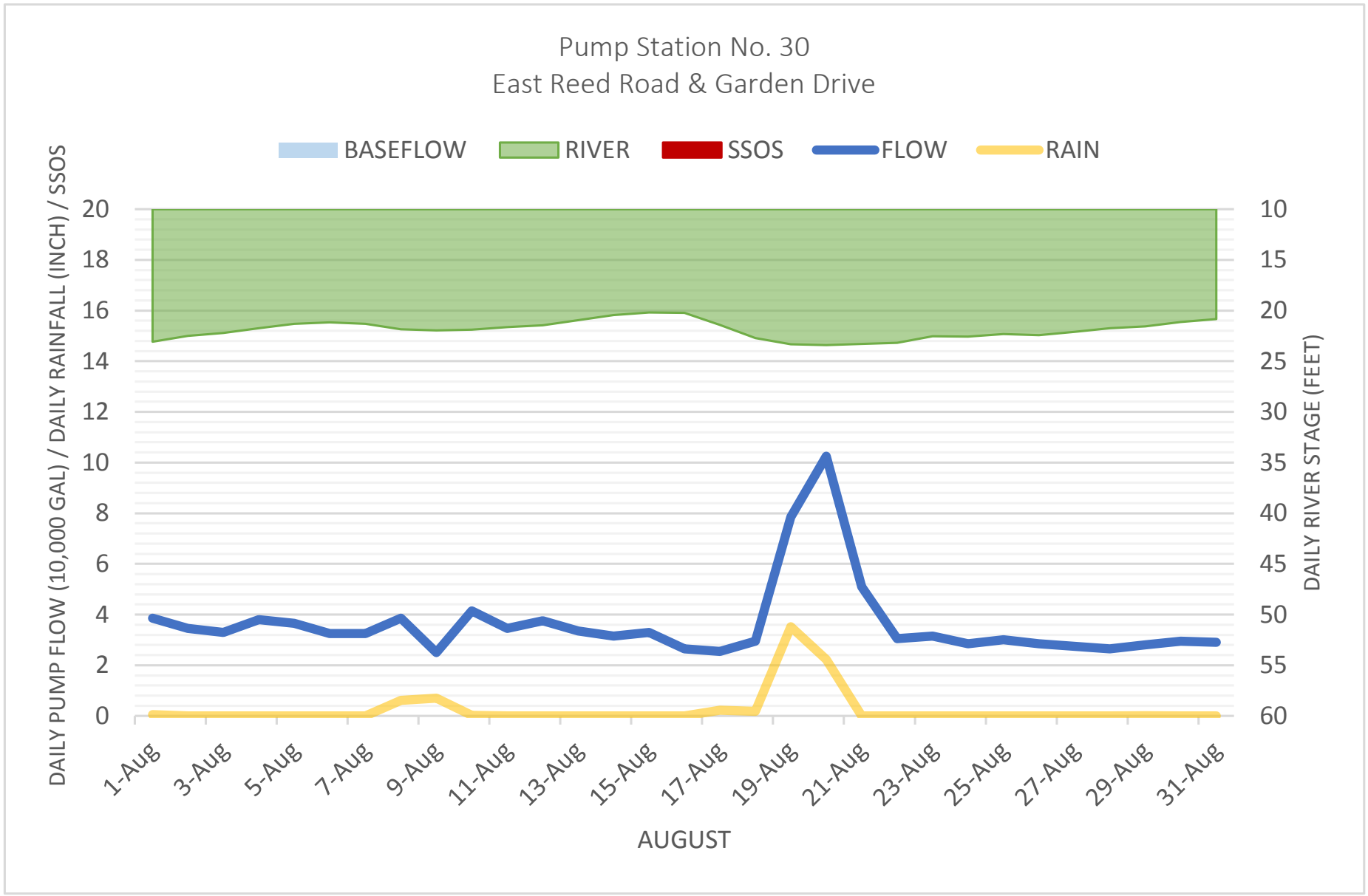
29-Jul
31-Jul
JULY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East Reed Road & Garden Drive
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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1-Aug
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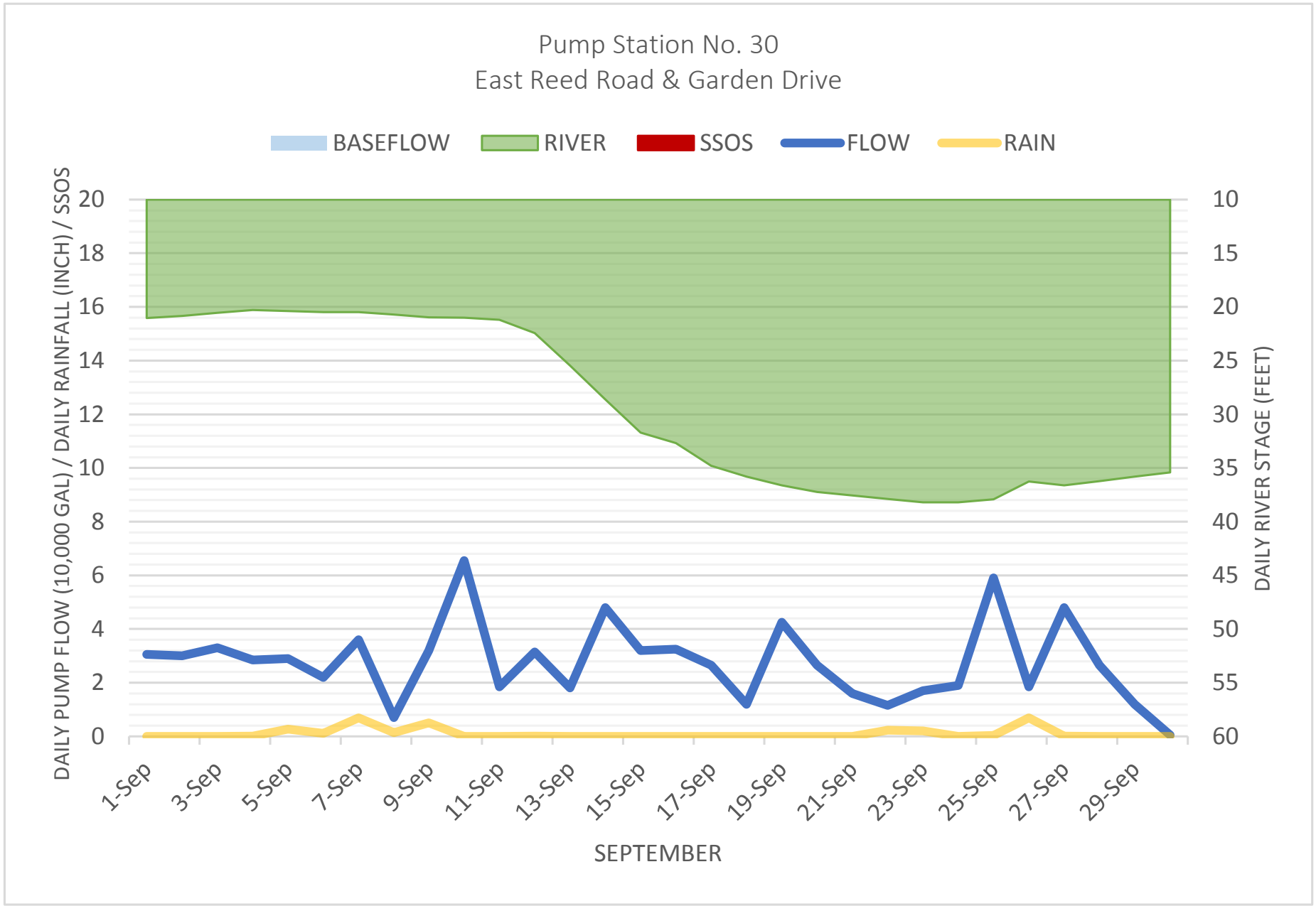
31-Aug
AUGUST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East Reed Road & Garden Drive
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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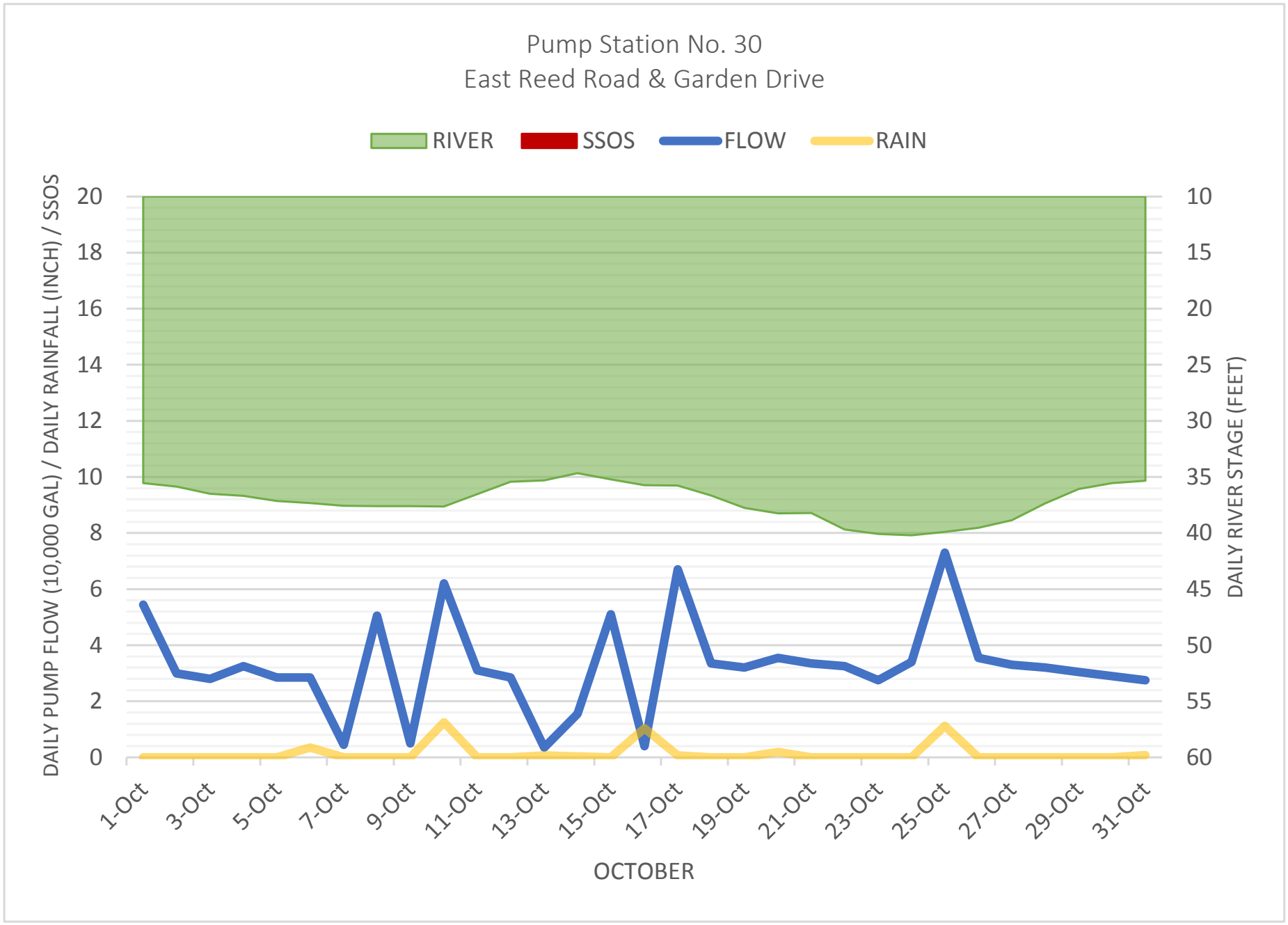
29-Sep
SEPTEMBER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East Reed Road & Garden Drive
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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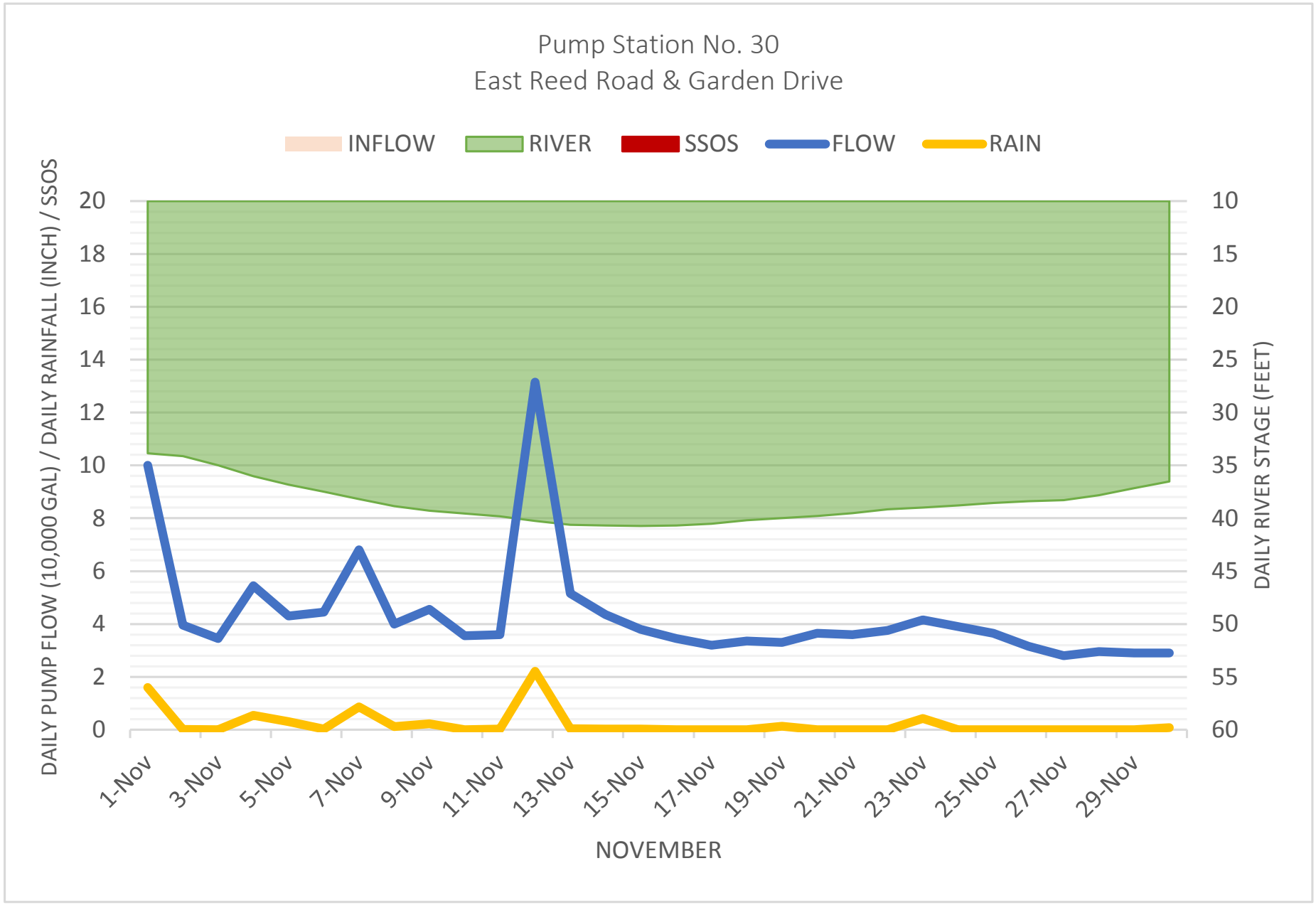
31-Oct
OCTOBER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East Reed Road & Garden Drive
INFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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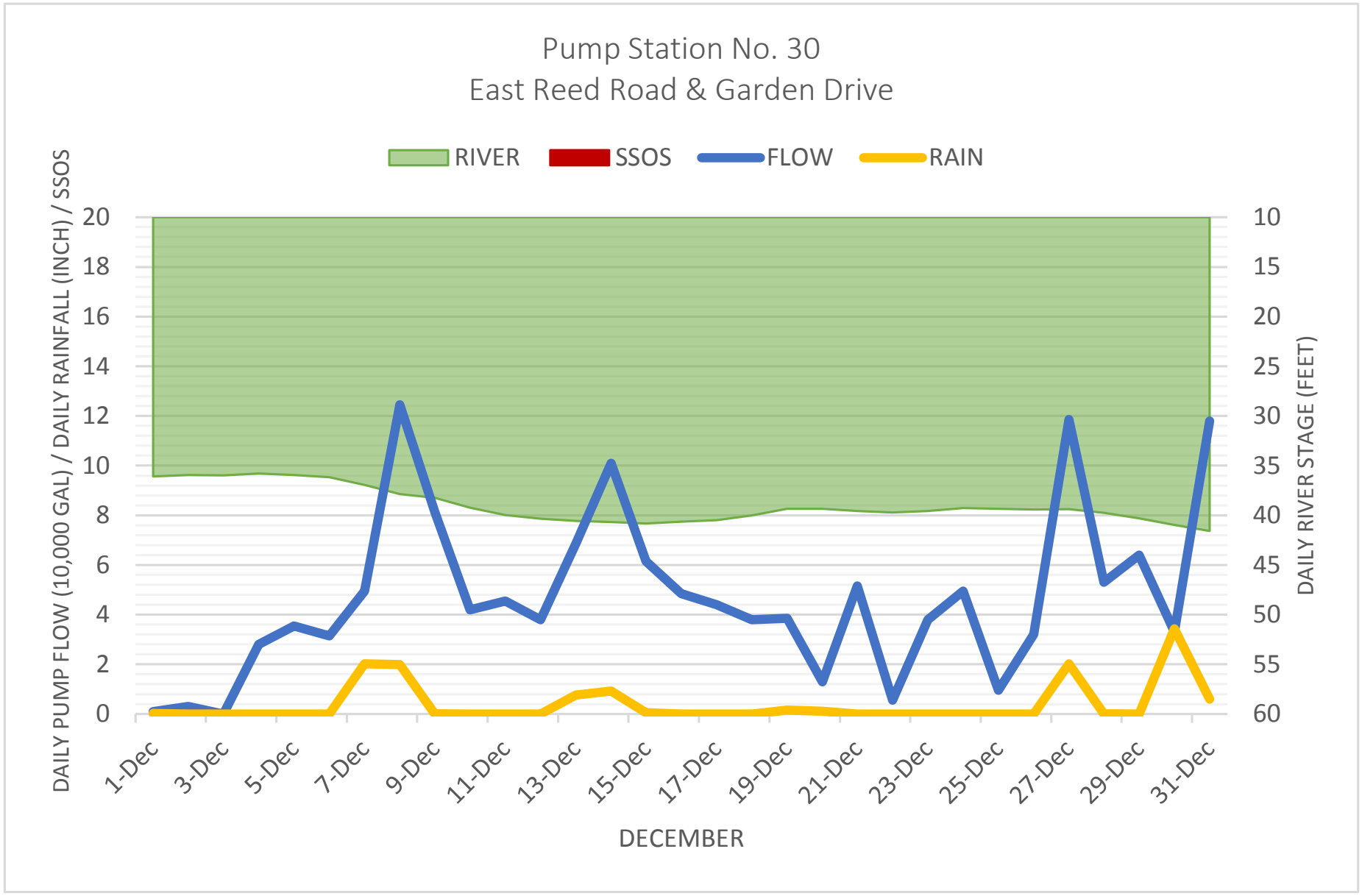
29-Nov
NOVEMBER


Pump Station No. 30
East Reed Road & Garden Drive
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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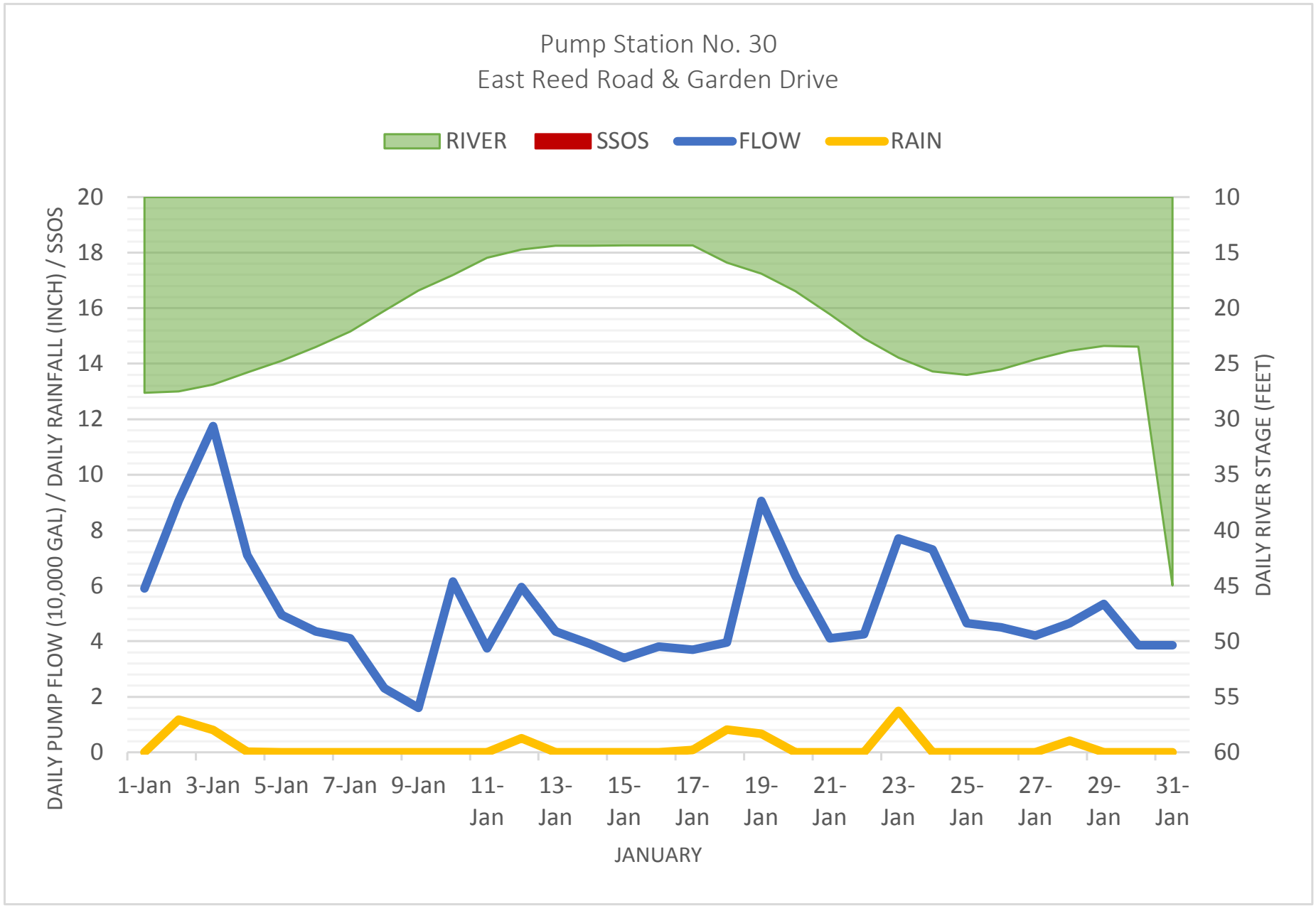
31-Dec
DECEMBER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East Reed Road & Garden Drive
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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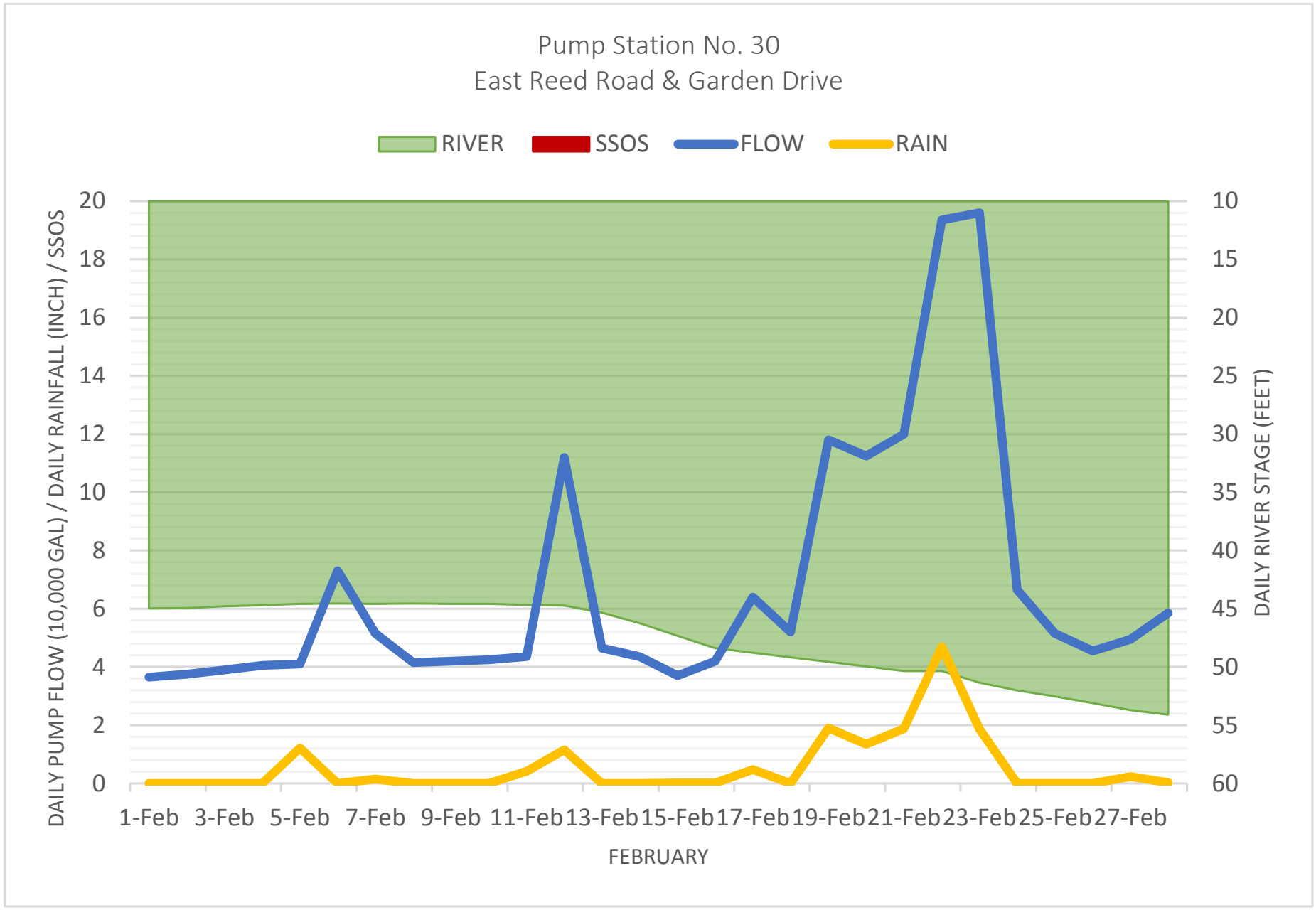
31-Jan
JANUARY


Pump Station No. 30
East Reed Road & Garden Drive
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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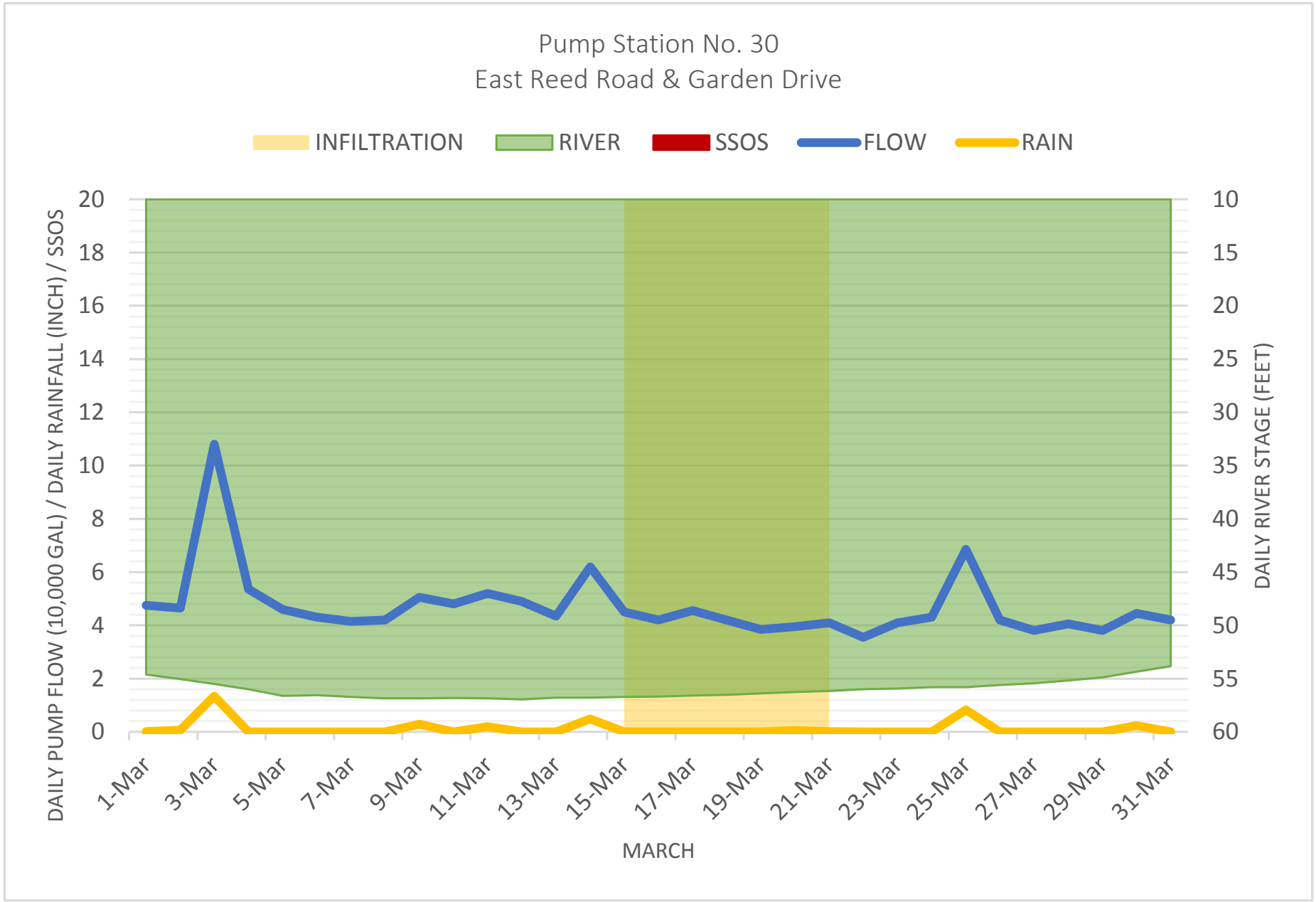
27-Feb
FEBRUARY


Pump Station No. 30
East Reed Road & Garden Drive
INFILTRATION
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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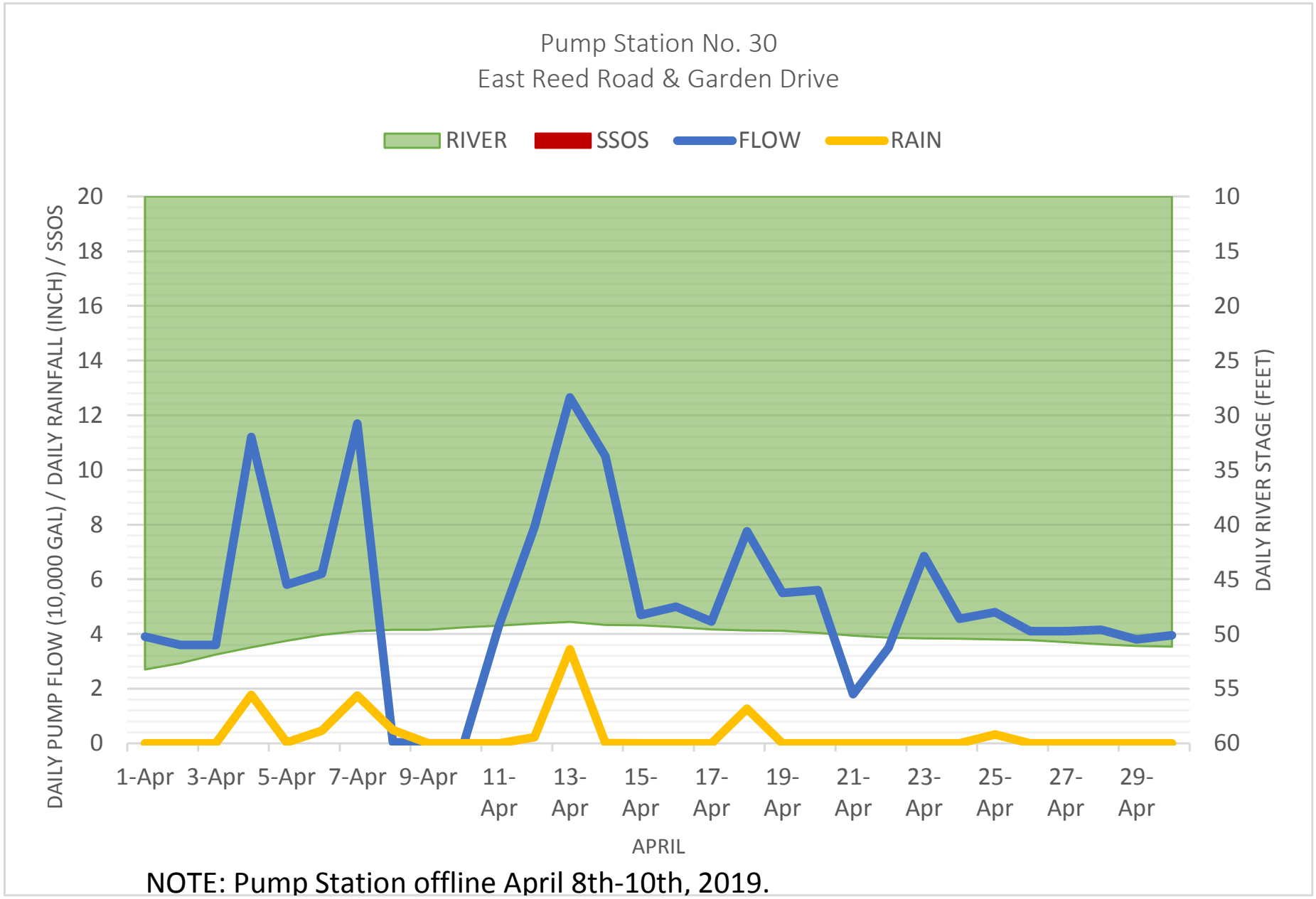
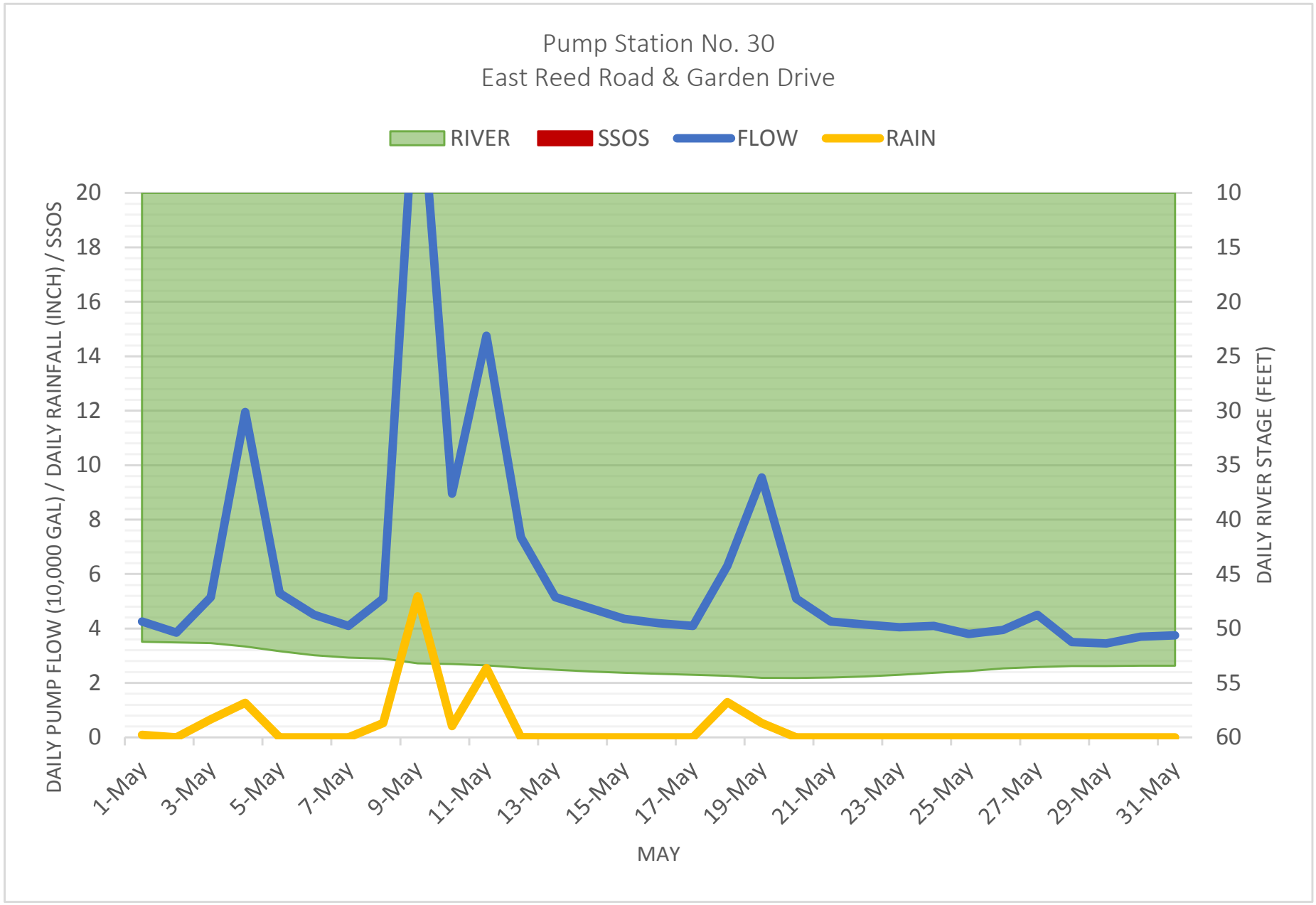
MARCH



NOTE: Pump Station offline April 8th-10th, 2019.


Pump Station No. 30
East Reed Road & Garden Drive
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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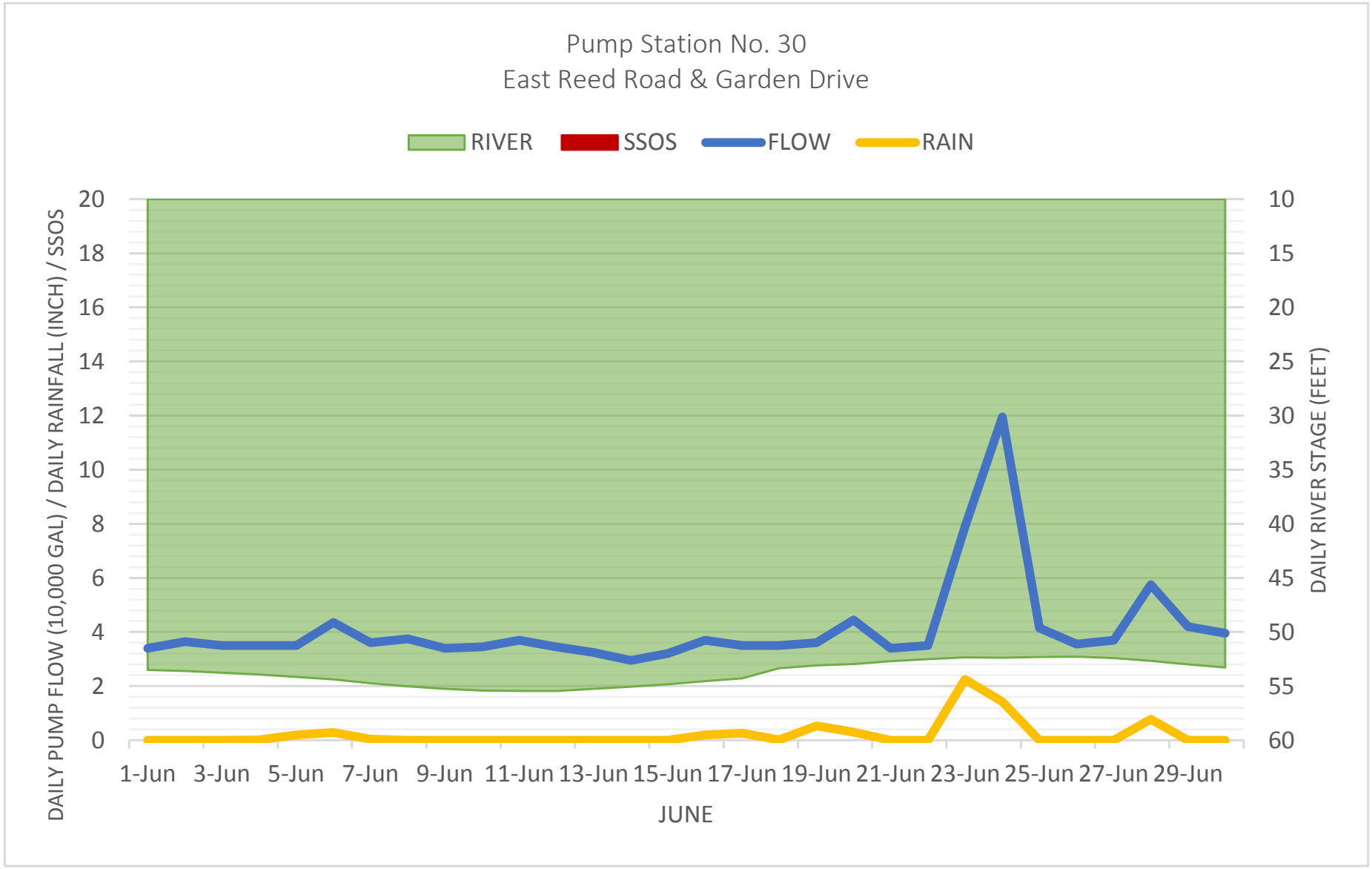
Pump Station No. 30
East Reed Road & Garden Drive
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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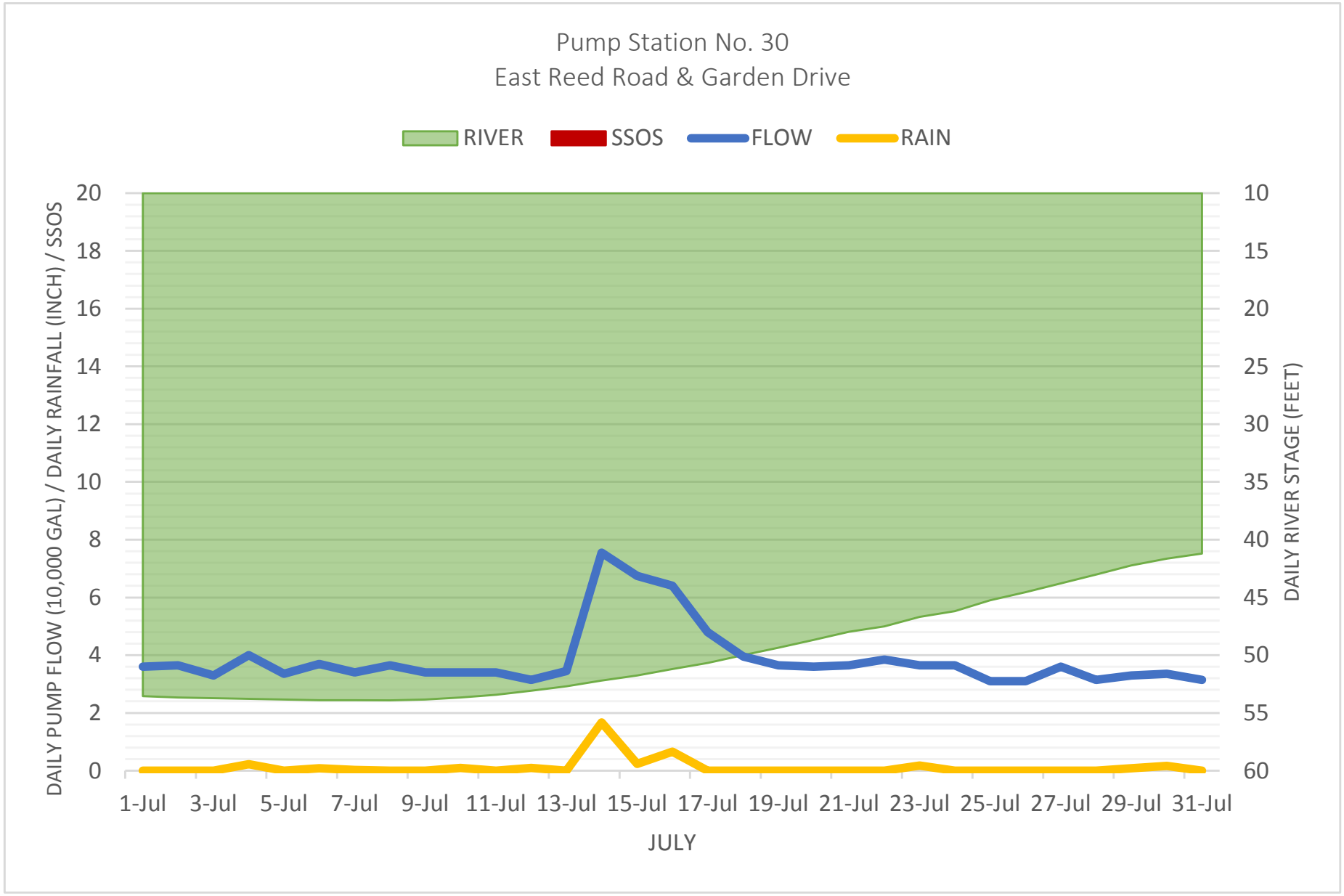
29-Jun
JUNE


Pump Station No. 30
East Reed Road & Garden Drive
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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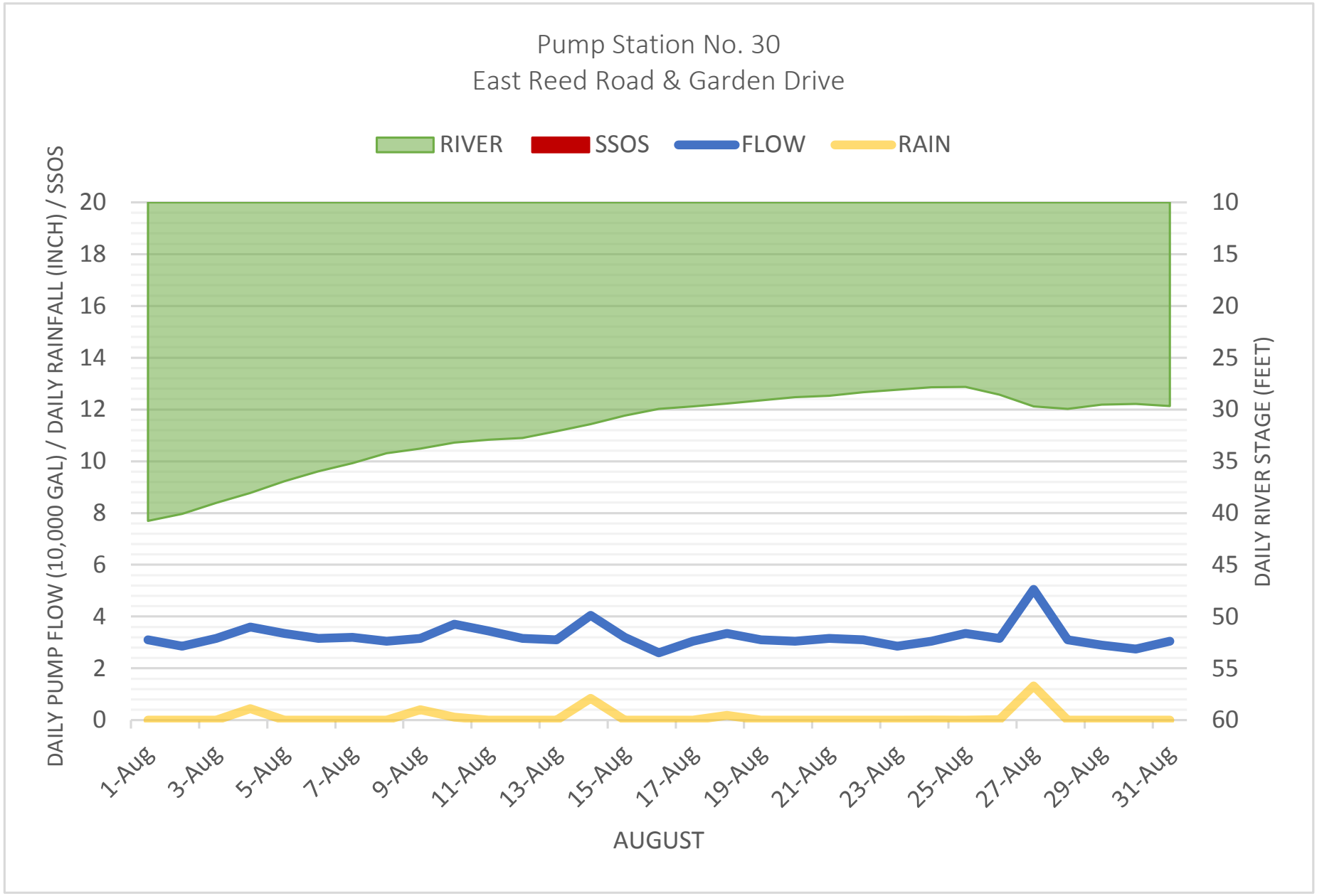
JULY


Pump Station No. 30
East Reed Road & Garden Drive
RIVER
SSOS
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DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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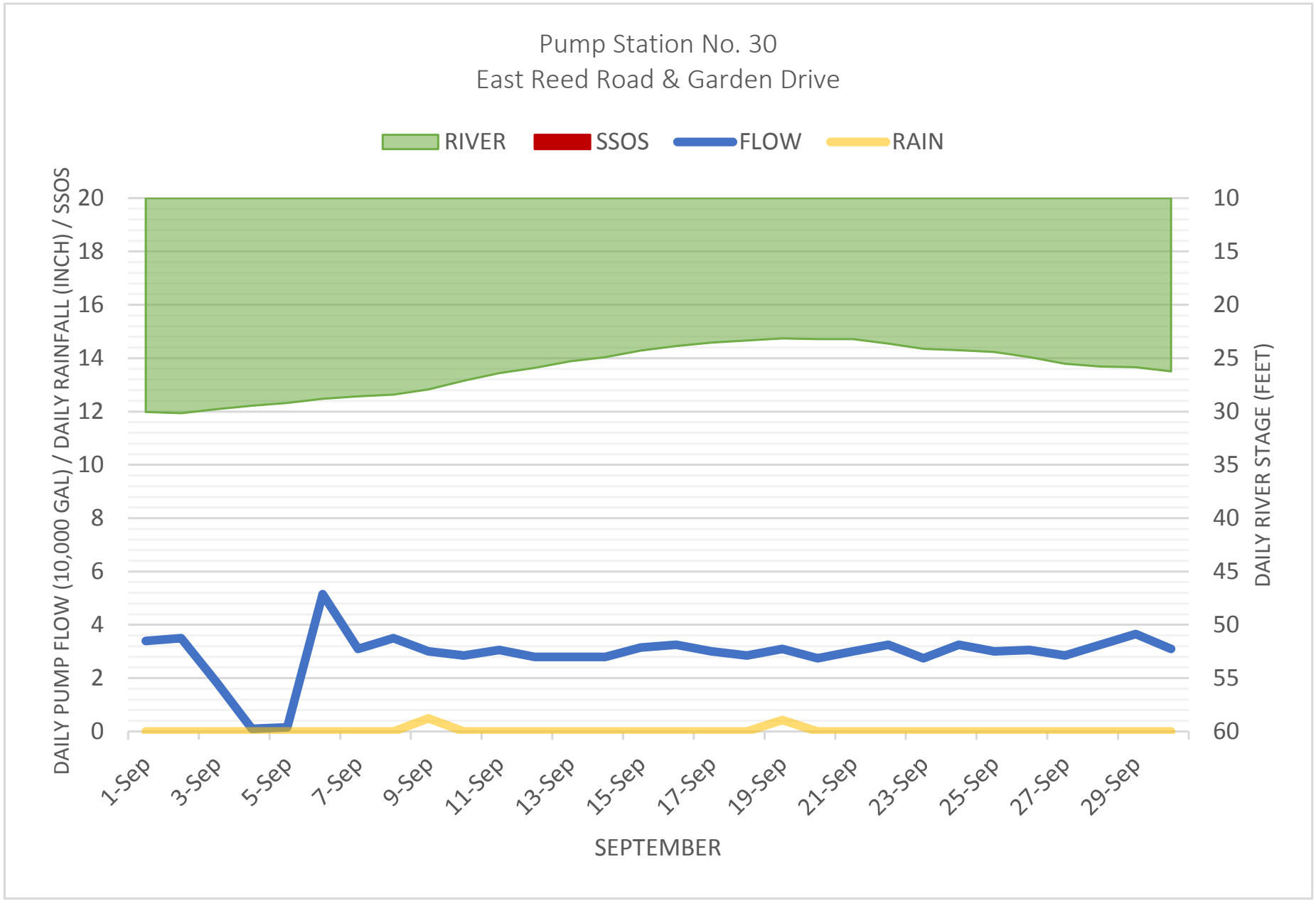
AUGUST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East Reed Road & Garden Drive
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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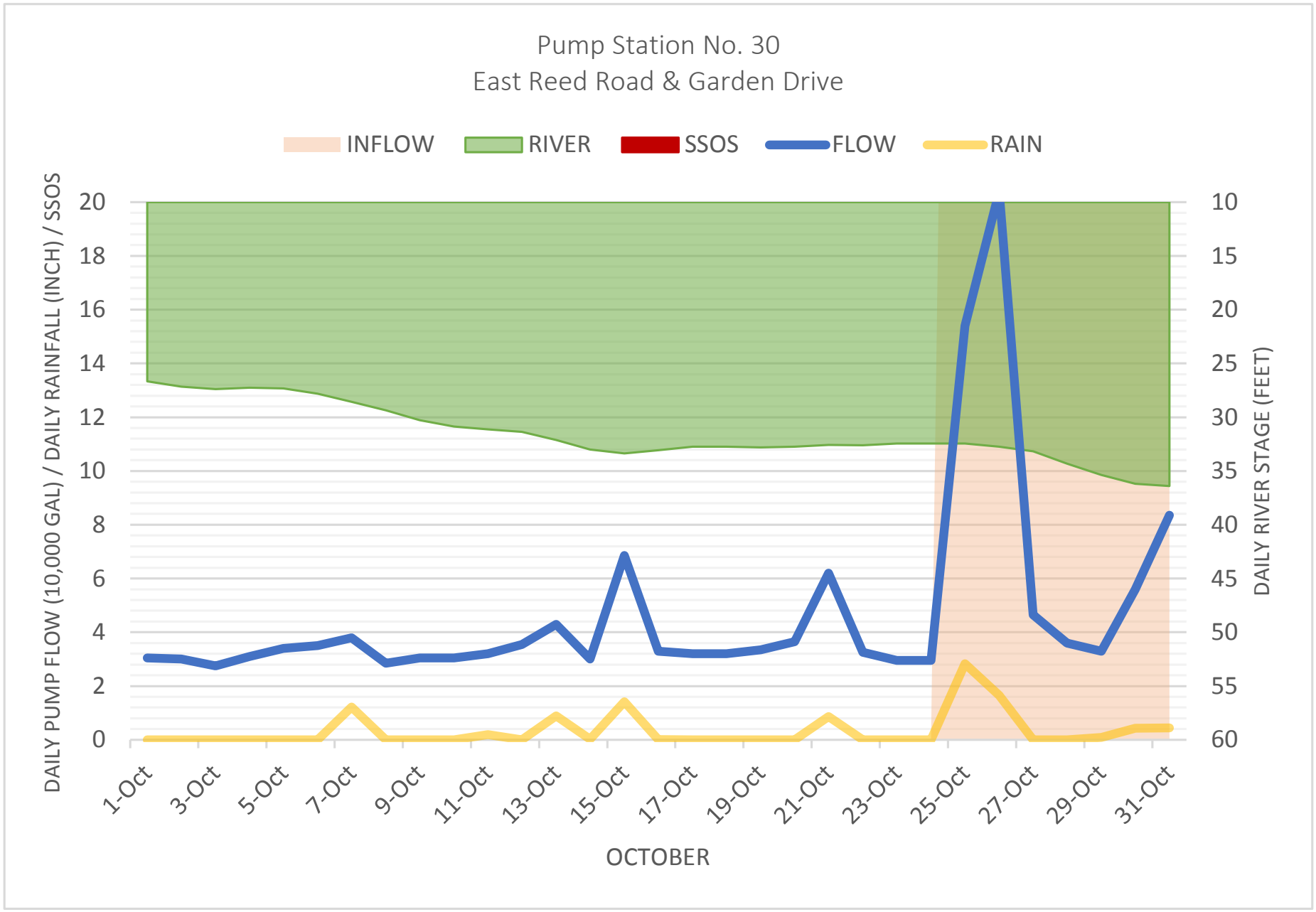
29-Sep
SEPTEMBER


Pump Station No. 30
East Reed Road & Garden Drive
INFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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23-Oct
25-Oct
27-Oct
29-Oct
31-Oct
OCTOBER

APPENDIX 35

MS25/PS11 I/I WORKSHEET

MS25/PS11
INFLOW & INFILTRATION WORKSHEET

Infiltration

	feet	miles	diameter	inch-miles	
8" Gravity	5118	0.969318182	8	7.754545	
laterals	8000	1.515151515	4	6.060606	
				13.81515	**total inch-miles in system**
TOTAL PIPE	13118				

maximum average infiltration	inch-miles		
42,642.8571	13.82	**3086.673**	**total gpd/idm**

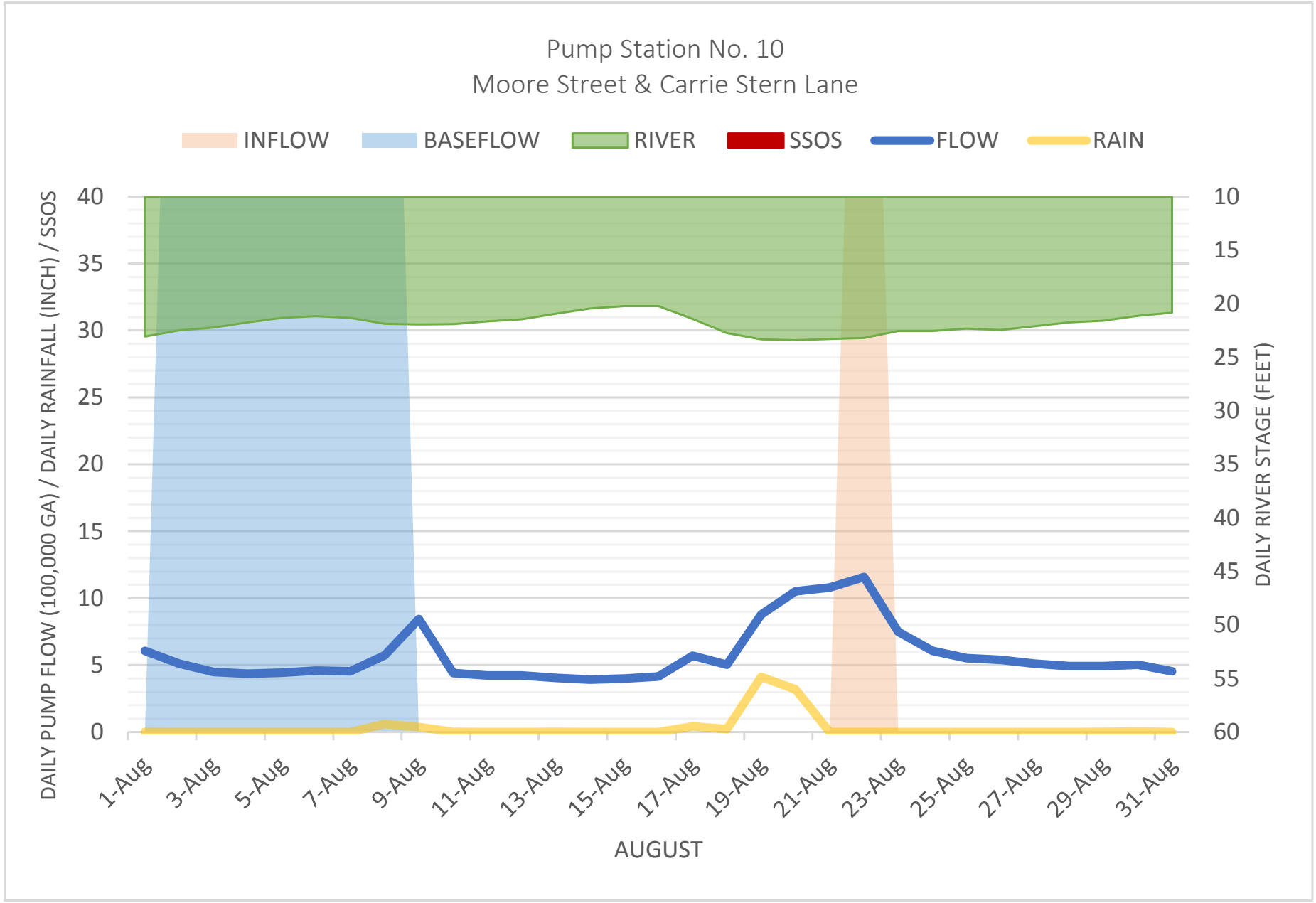
Inflow

	feet	miles	diameter	inch-miles	
8" Gravity	5118	0.969318182	8	7.754545	
laterals	8000	1.515151515	4	6.060606	
				13.81515	**total inch-miles in system**
TOTAL PIPE	13118				

maximum average inflow	inch-miles		
28,642.8571	13.82	**2073.293**	**total gpd/idm**

APPENDIX 36

MS25/PS11 GRAPHS


Pump Station No. 10
Moore Street & Carrie Stern Lane
INFLOW
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GA) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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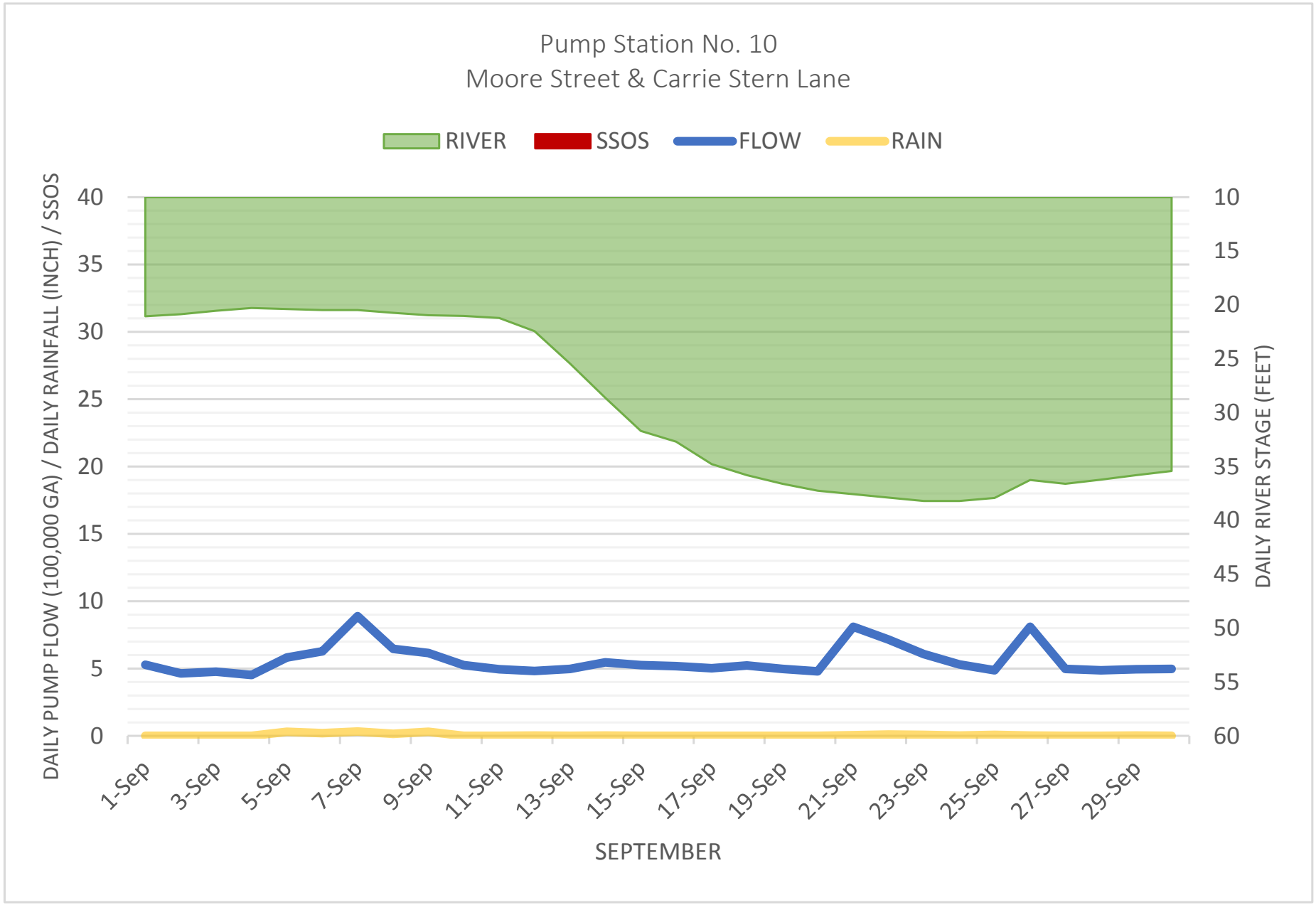
AUGUST


Pump Station No. 10
Moore Street & Carrie Stern Lane
RIVER
SSOS
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RAIN
DAILY PUMP FLOW (100,000 GA) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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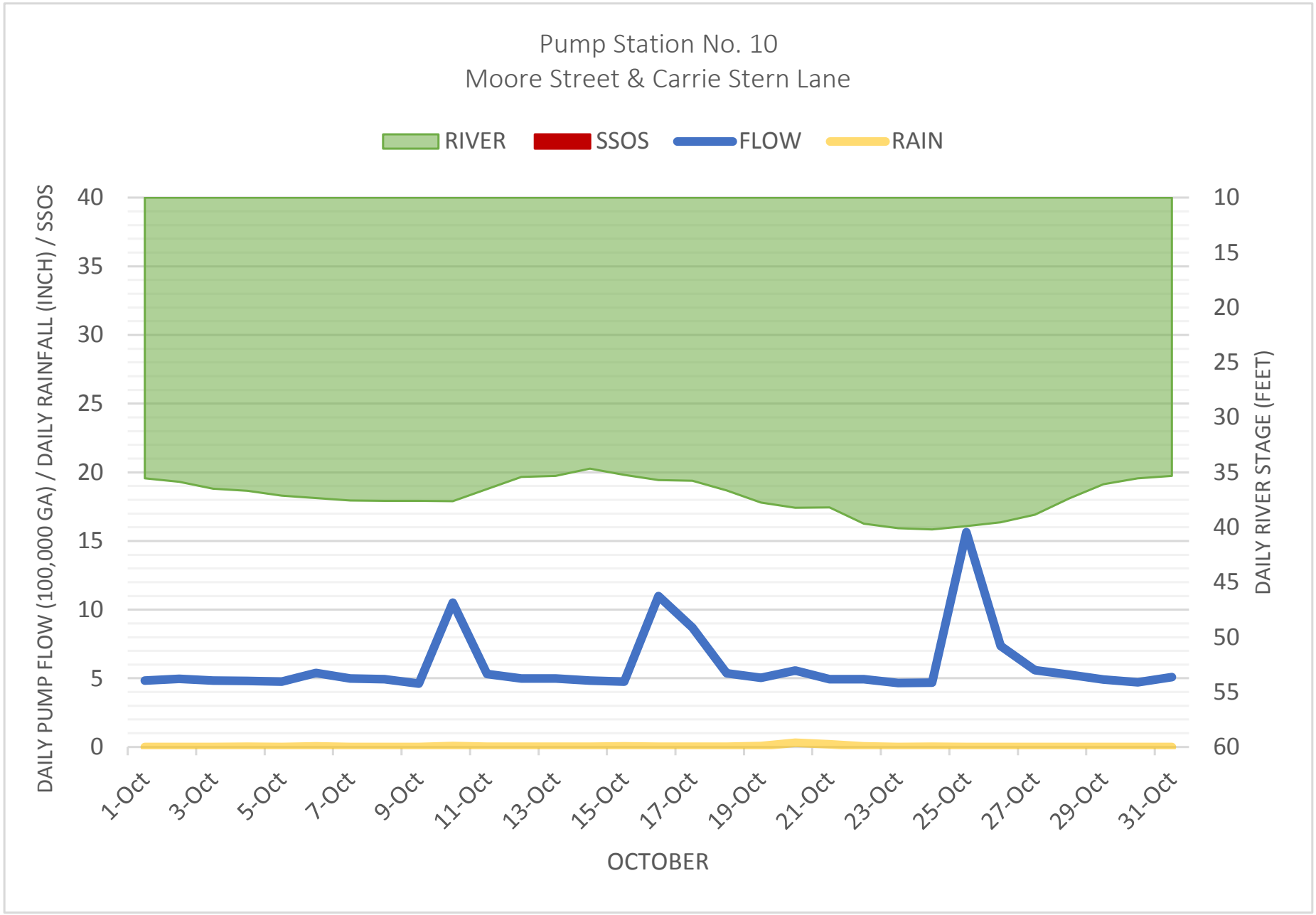
SEPTEMBER


Pump Station No. 10
Moore Street & Carrie Stern Lane
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GA) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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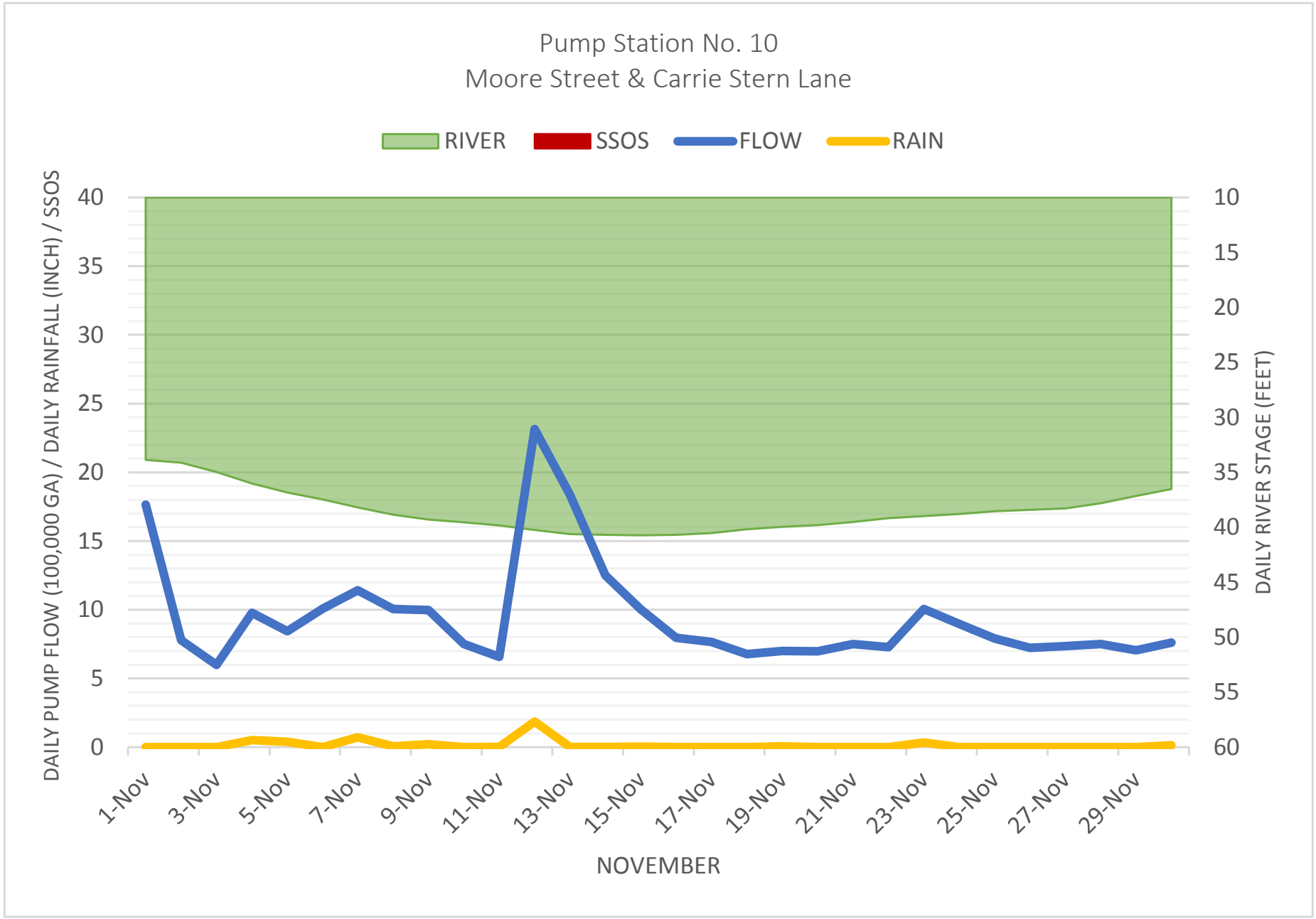
OCTOBER


Pump Station No. 10
Moore Street & Carrie Stern Lane
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GA) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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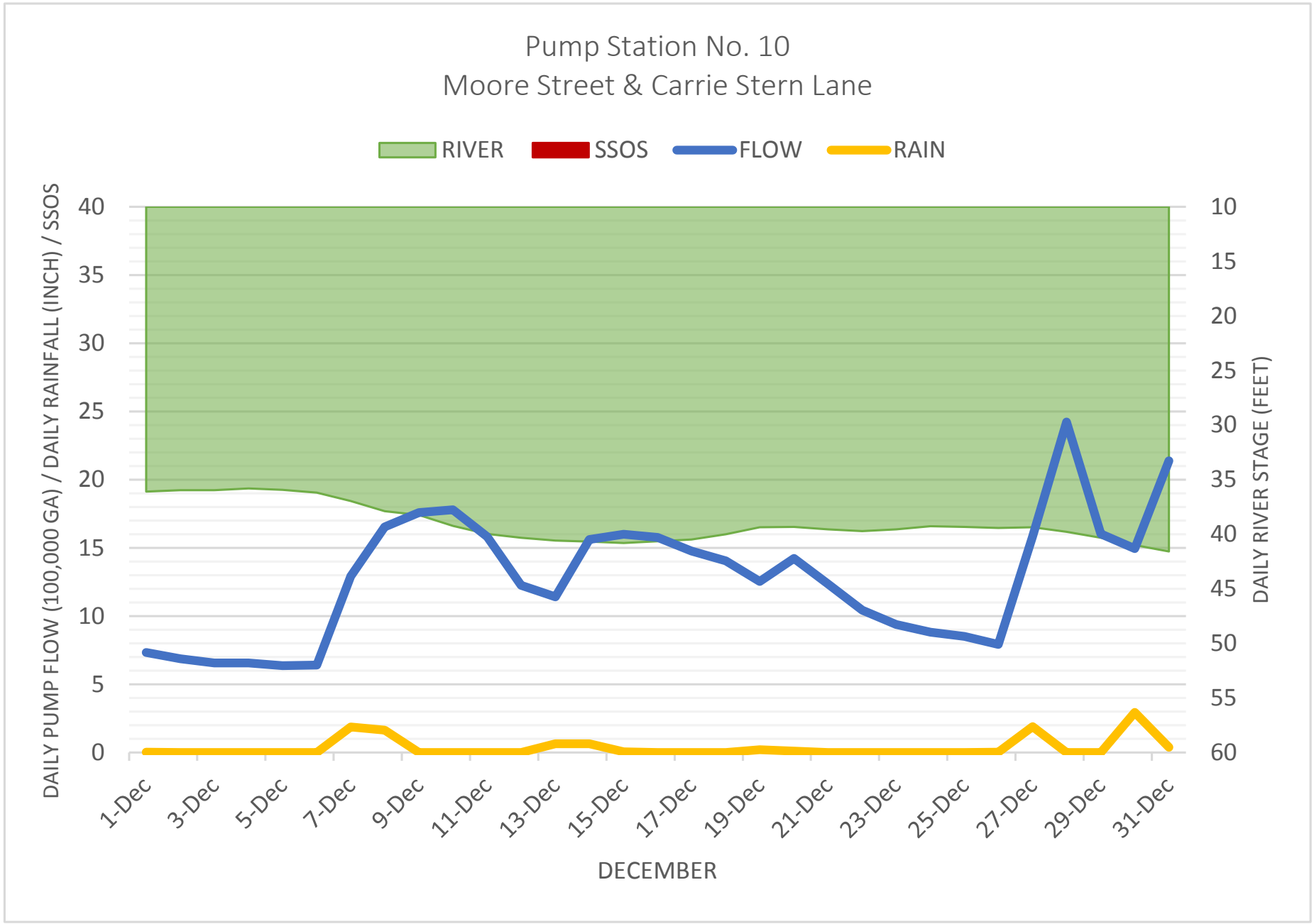
NOVEMBER


Pump Station No. 10
Moore Street & Carrie Stern Lane
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GA) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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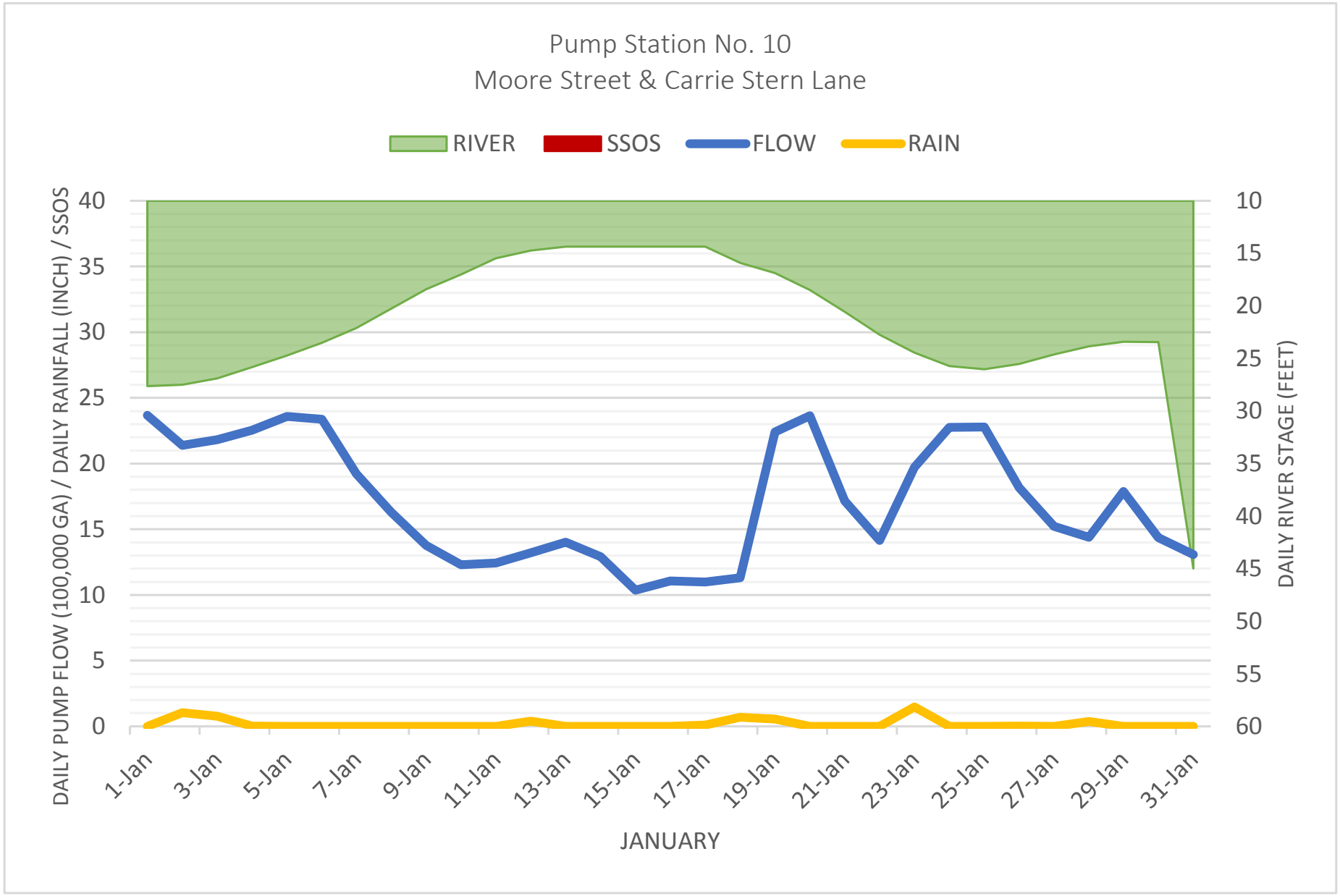
29-Dec
31-Dec
DECEMBER


Pump Station No. 10
Moore Street & Carrie Stern Lane
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GA) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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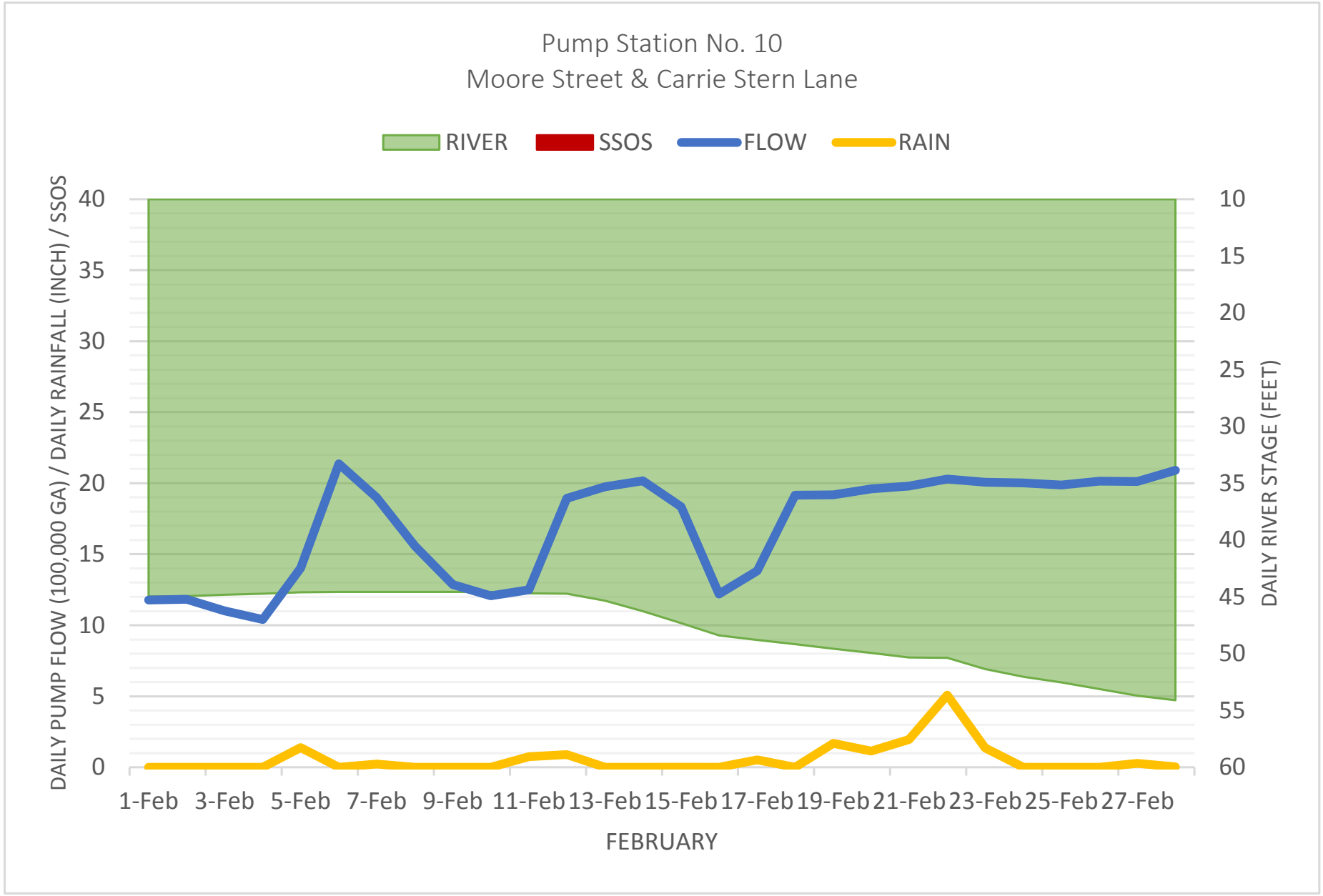
31-Jan
JANUARY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Moore Street & Carrie Stern Lane
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GA) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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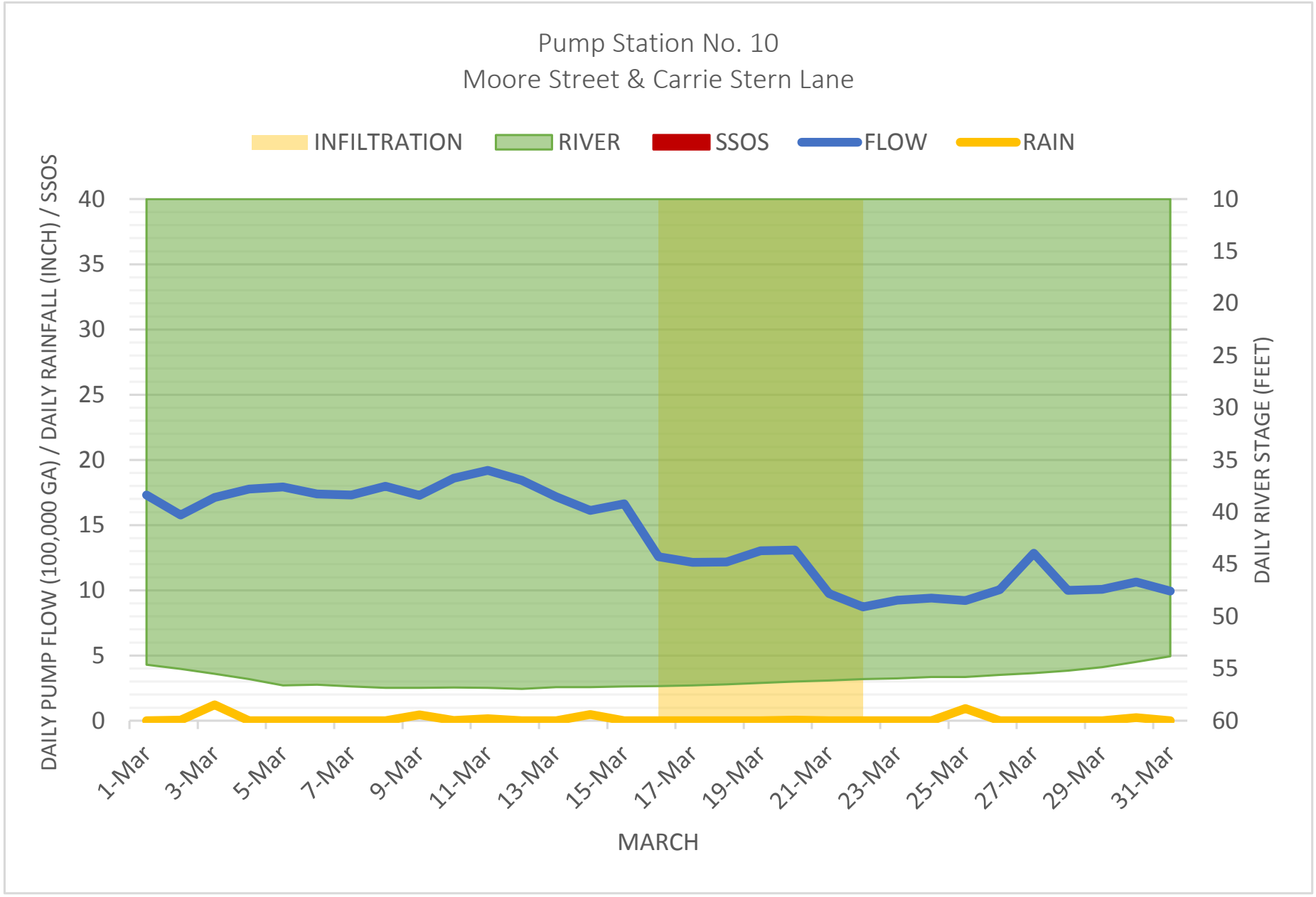
27-Feb
FEBRUARY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INFILTRATION
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GA) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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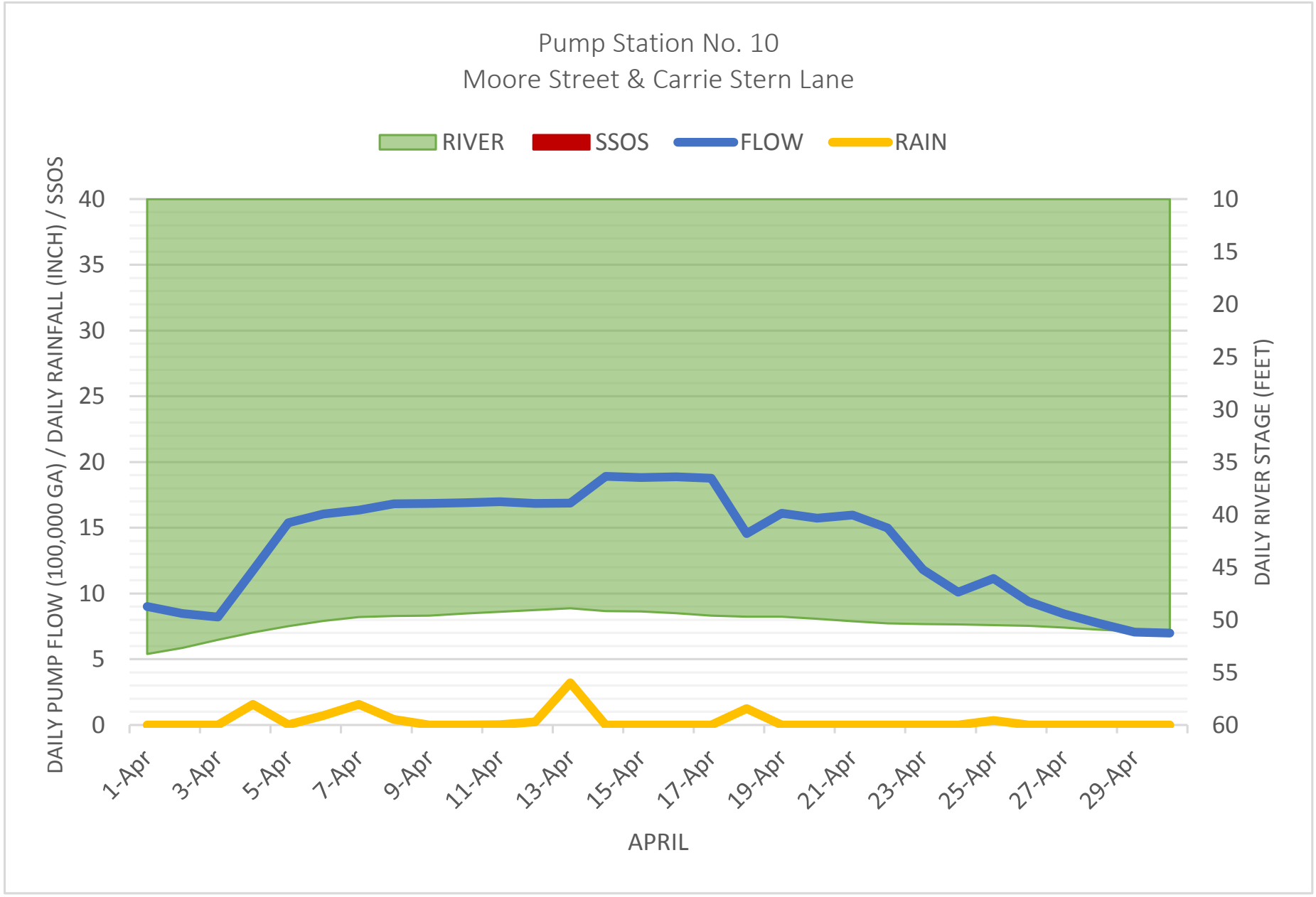
31-Mar
MARCH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Moore Street & Carrie Stern Lane
RIVER
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FLOW
RAIN
DAILY PUMP FLOW (100,000 GA) / DAILY RAINFALL (INCH) / SSOS
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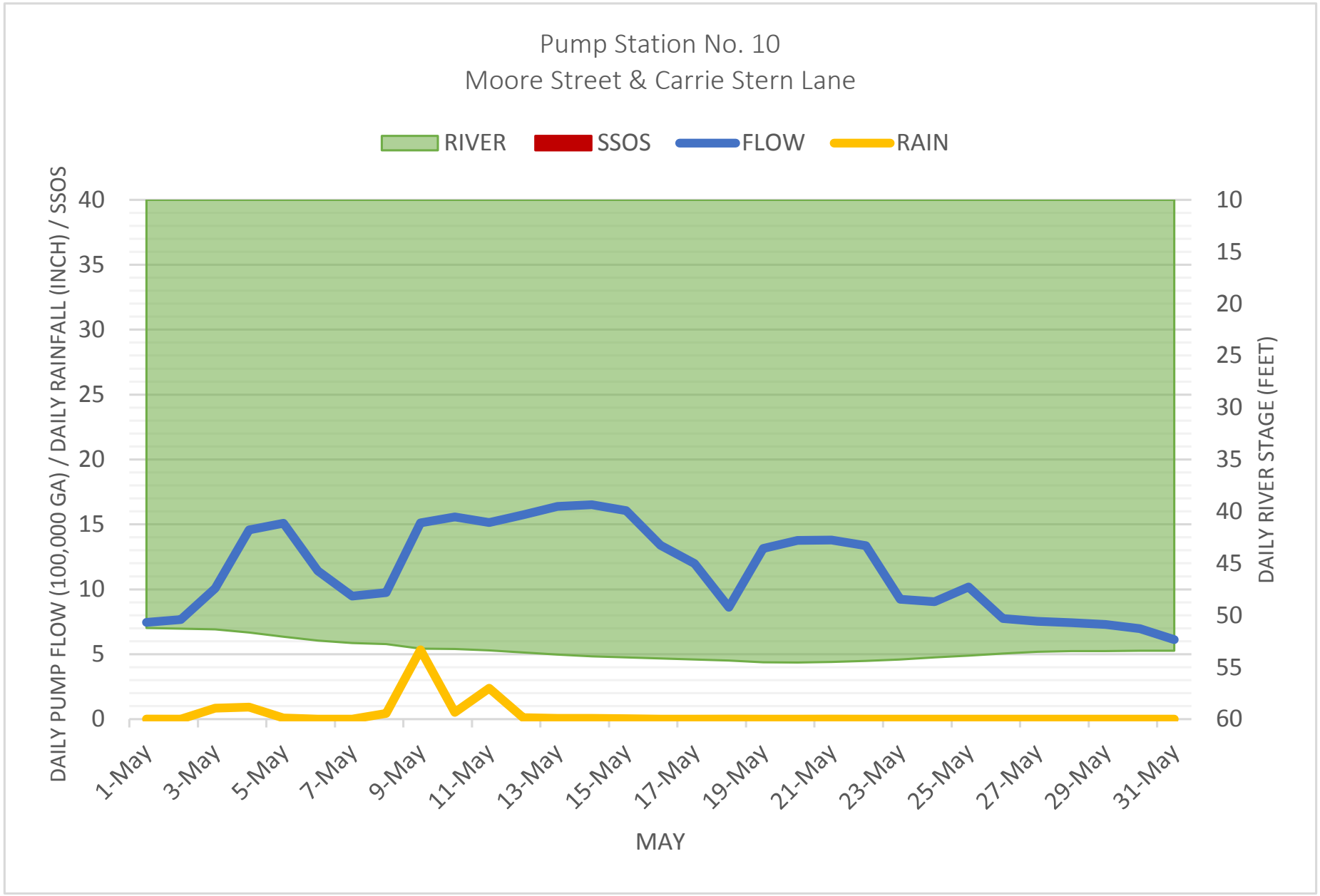
APRIL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Moore Street & Carrie Stern Lane
RIVER
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FLOW
RAIN
DAILY PUMP FLOW (100,000 GA) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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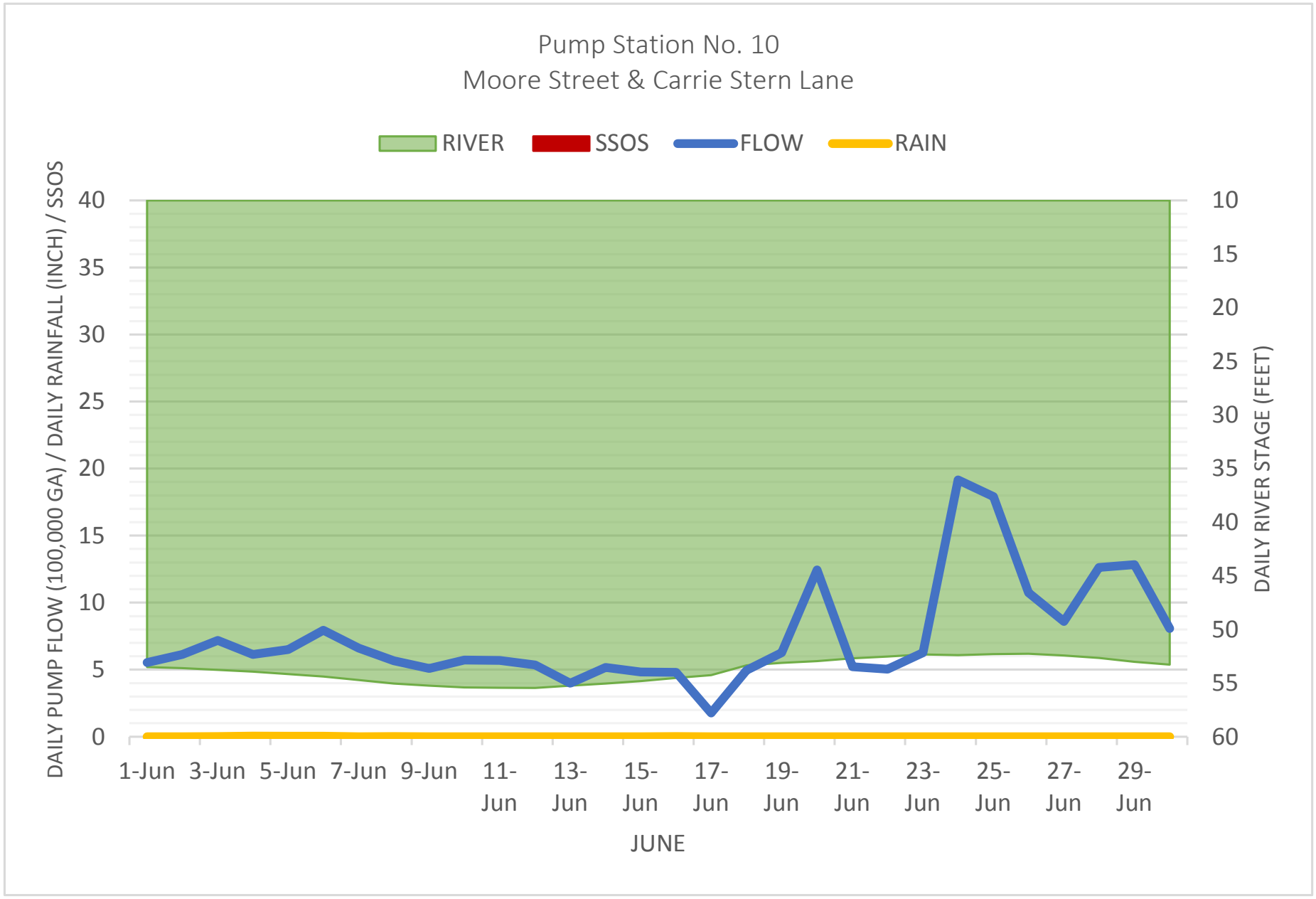
MAY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RIVER
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FLOW
RAIN
DAILY PUMP FLOW (100,000 GA) / DAILY RAINFALL (INCH) / SSOS
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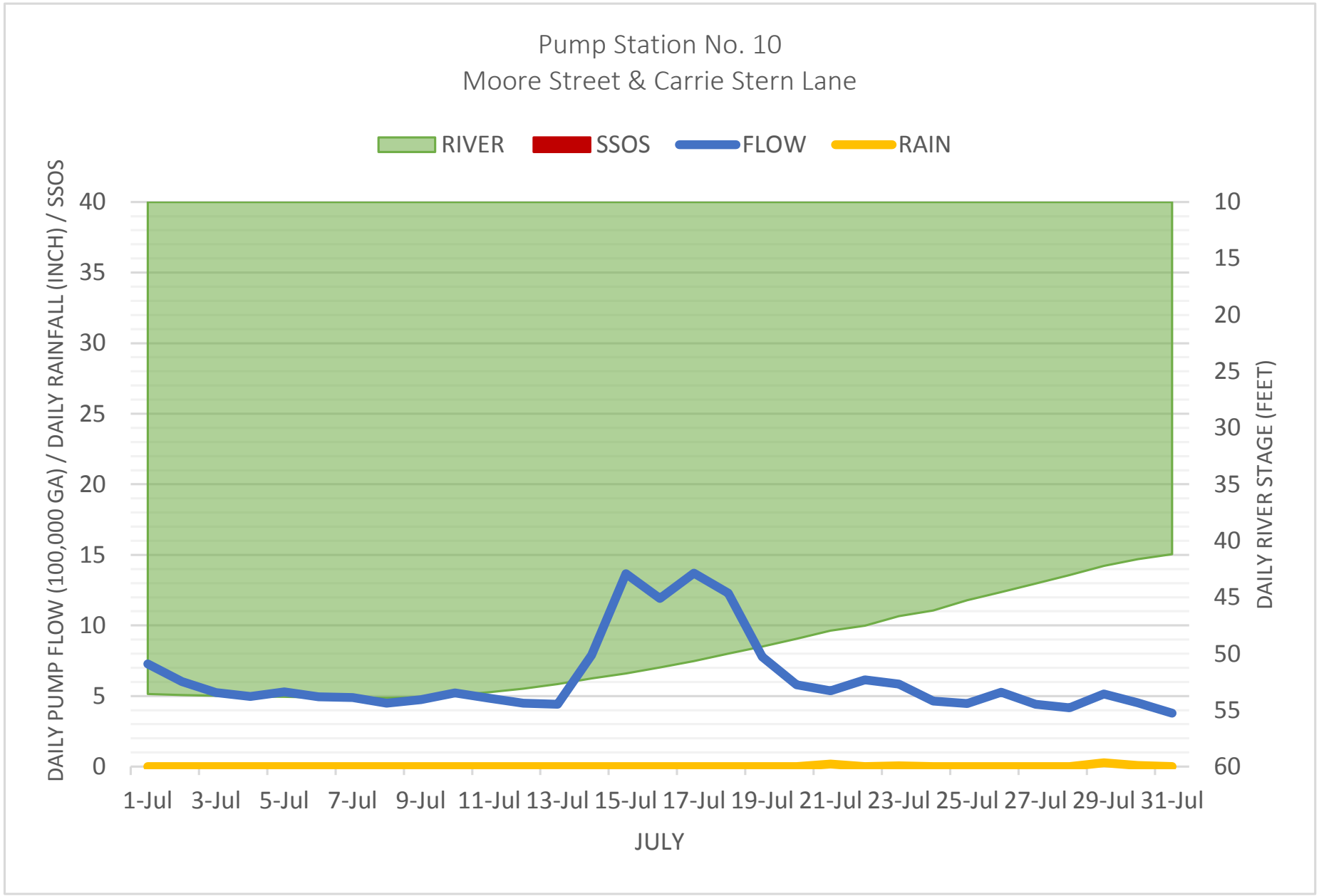
29-Jun
JUNE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FLOW
RAIN
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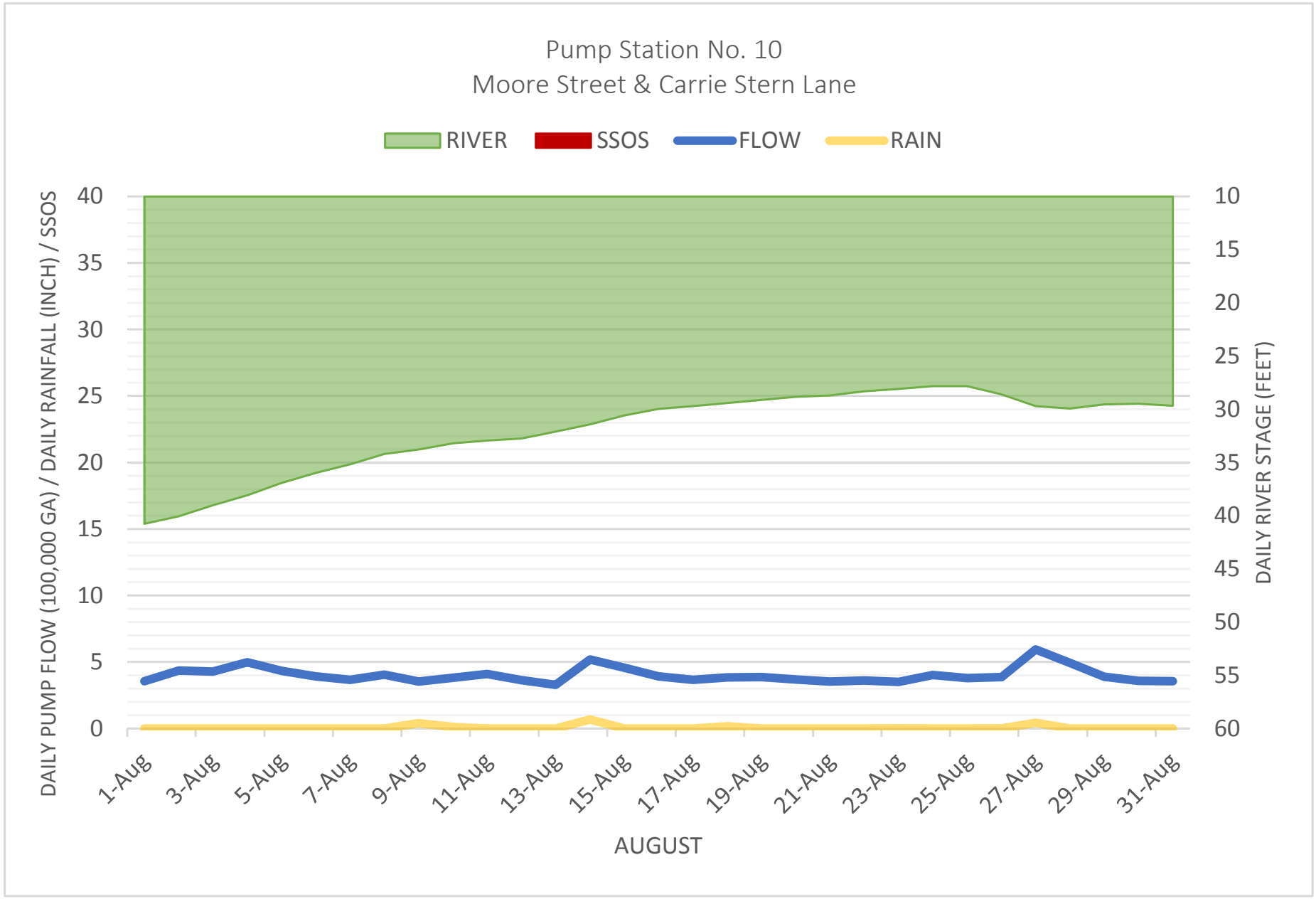
JULY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FLOW
RAIN
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DAILY RIVER STAGE (FEET)
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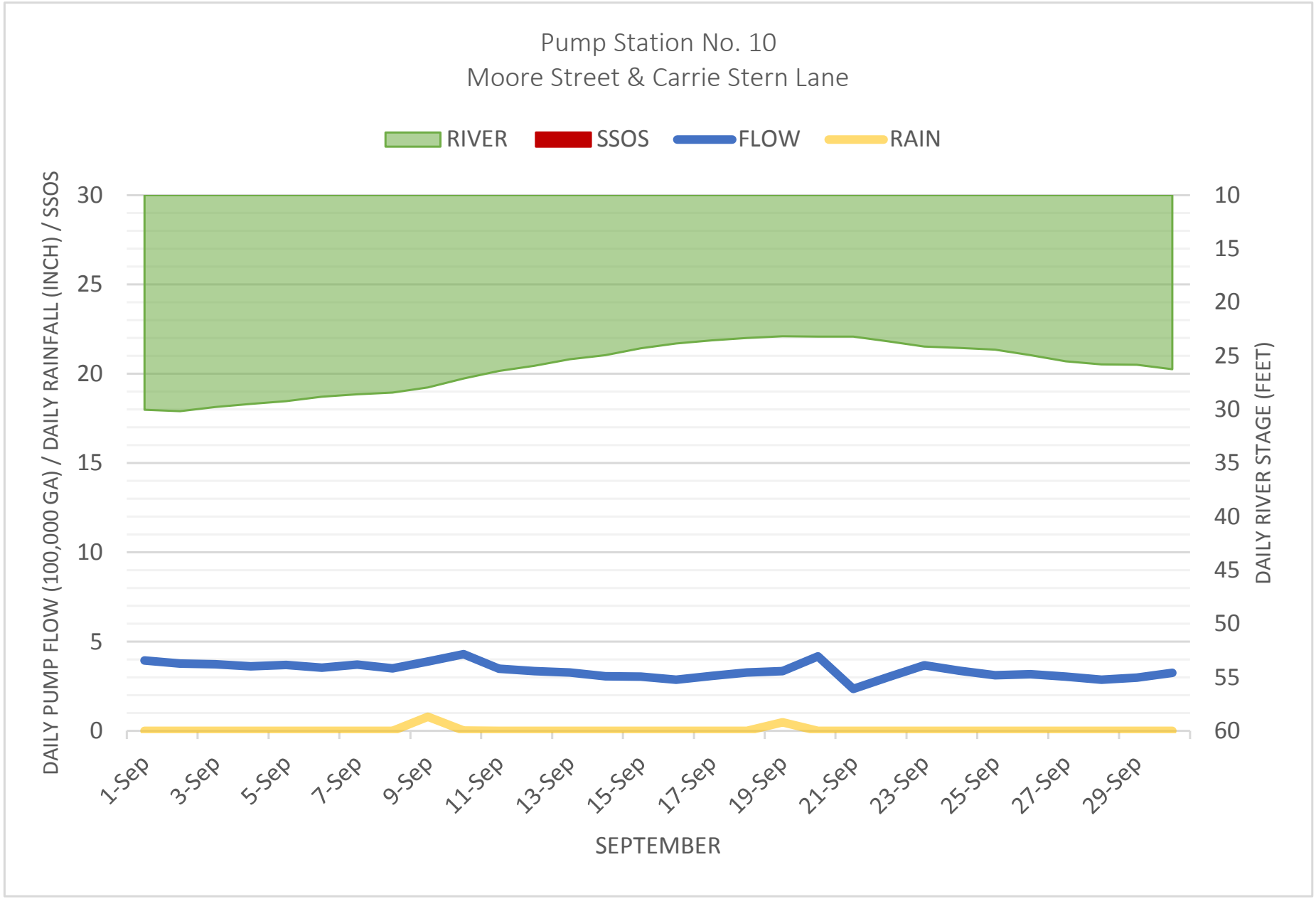
AUGUST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Moore Street & Carrie Stern Lane
RIVER
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FLOW
RAIN
DAILY PUMP FLOW (100,000 GA) / DAILY RAINFALL (INCH) / SSOS
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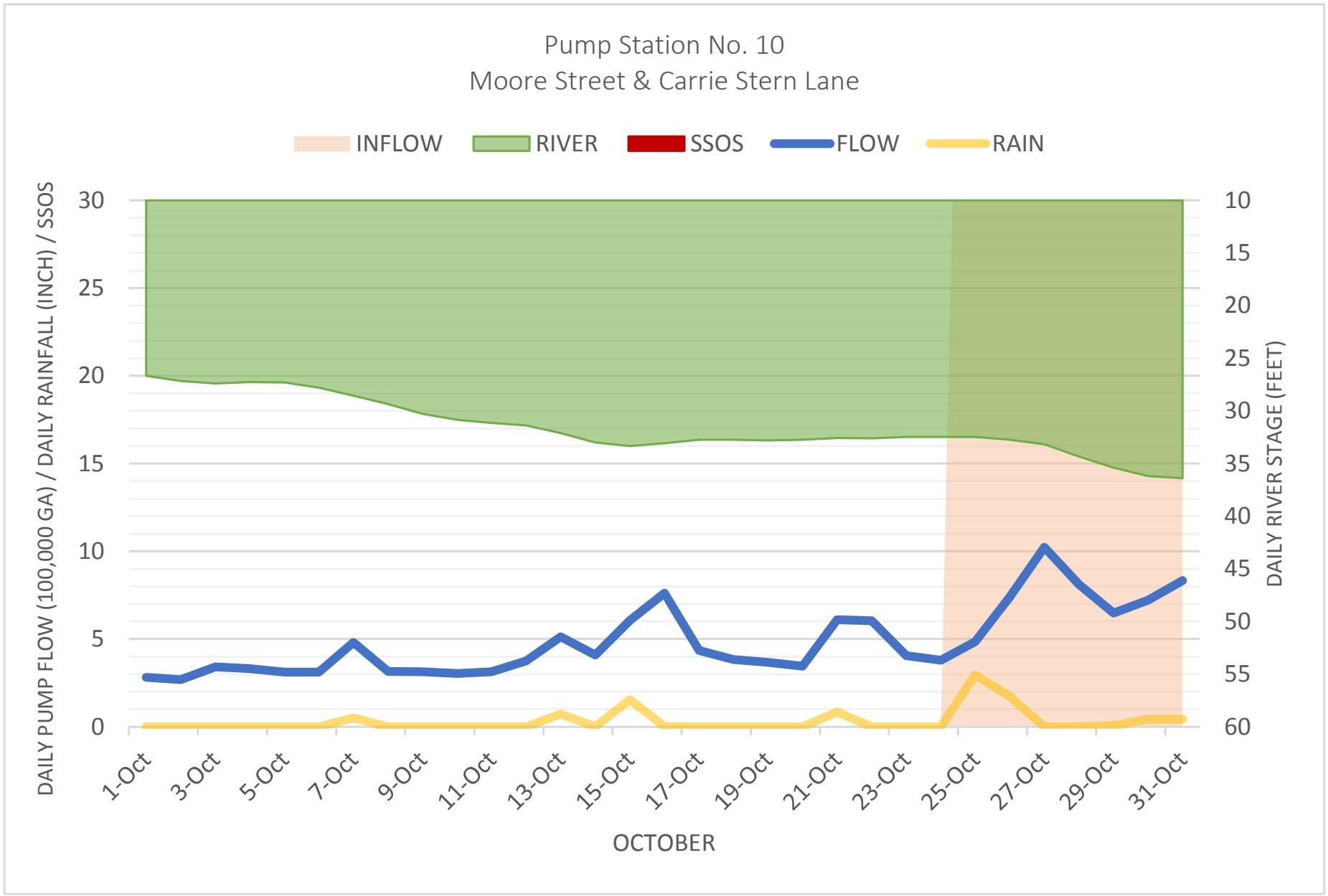
29-Sep
SEPTEMBER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Moore Street & Carrie Stern Lane
INFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GA) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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11-Oct
13-Oct
15-Oct
17-Oct
19-Oct
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23-Oct
25-Oct
27-Oct
29-Oct
31-Oct
OCTOBER

APPENDIX 37

MS25/PS12 I/I WORKSHEET

MS25/PS12
INFLOW & INFILTRATION WORKSHEET

Infiltration

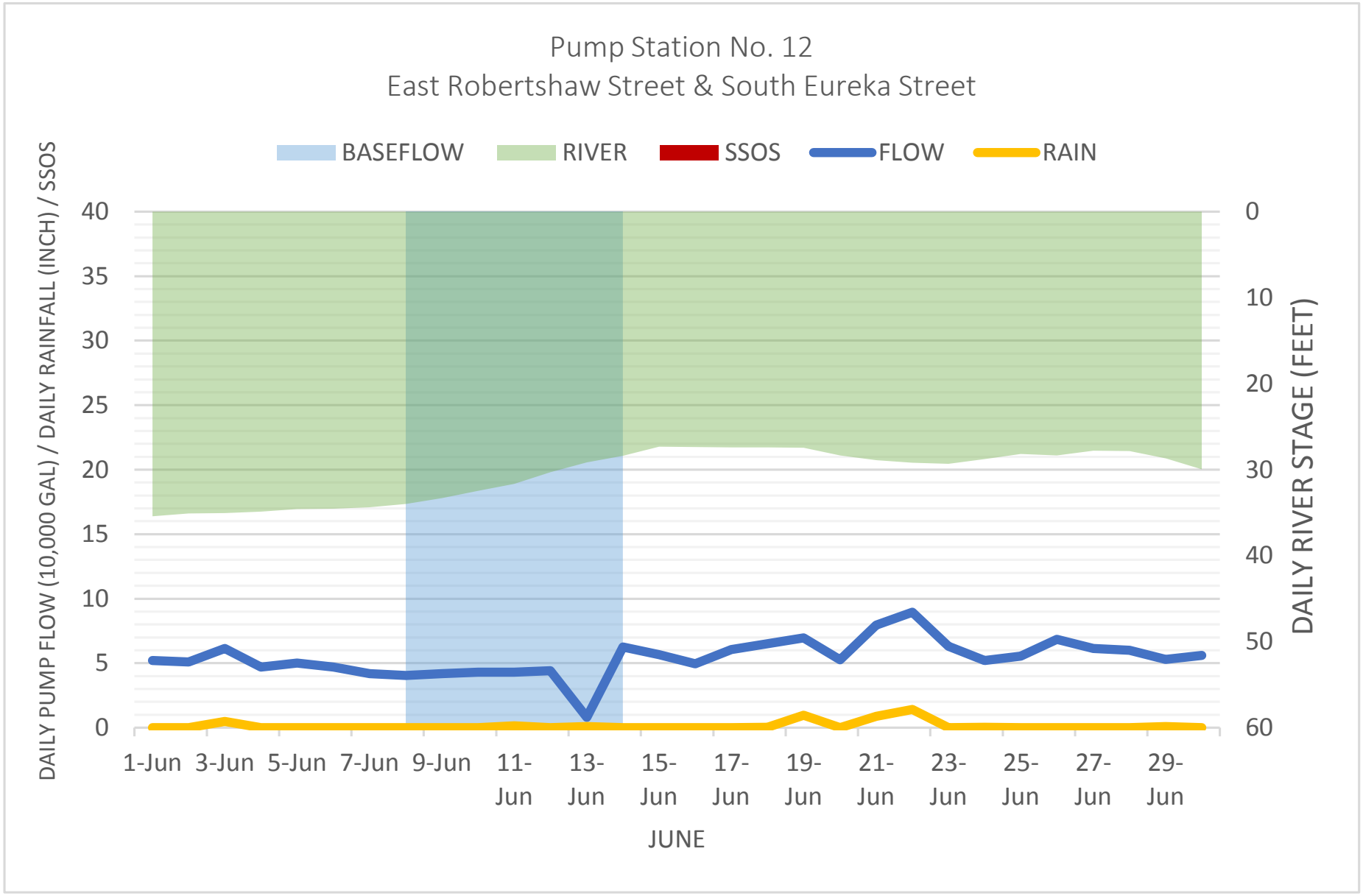
	feet	miles	diameter	inch-miles	
10" Gravity	822	0.16	10.00	1.556818	
8" Gravity	8122	1.538257576	8	12.30606	
laterals	10400	1.96969697	4	7.878788	
				21.74167	**total inch-miles in system**
TOTAL MAINLINES	8944				
		maximum average infiltration	inch-miles		
		75,642.8914	21.74	**3479.167**	**total gpd/idm**

Inflow

	feet	miles	diameter	inch-miles	
10" Gravity	822	0.16	10.00	1.556818	
8" Gravity	8122	1.538257576	8	12.30606	
laterals	10400	1.96969697	4	7.878788	
				21.74167	**total inch-miles in system**
		maximum average inflow	inch-miles		
		71,000.0343	7.88	**9011.543**	**total gpd/idm**

APPENDIX 38

MS25/PS12 GRAPHS


Pump Station No. 12
East Robertshaw Street & South Eureka Street
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
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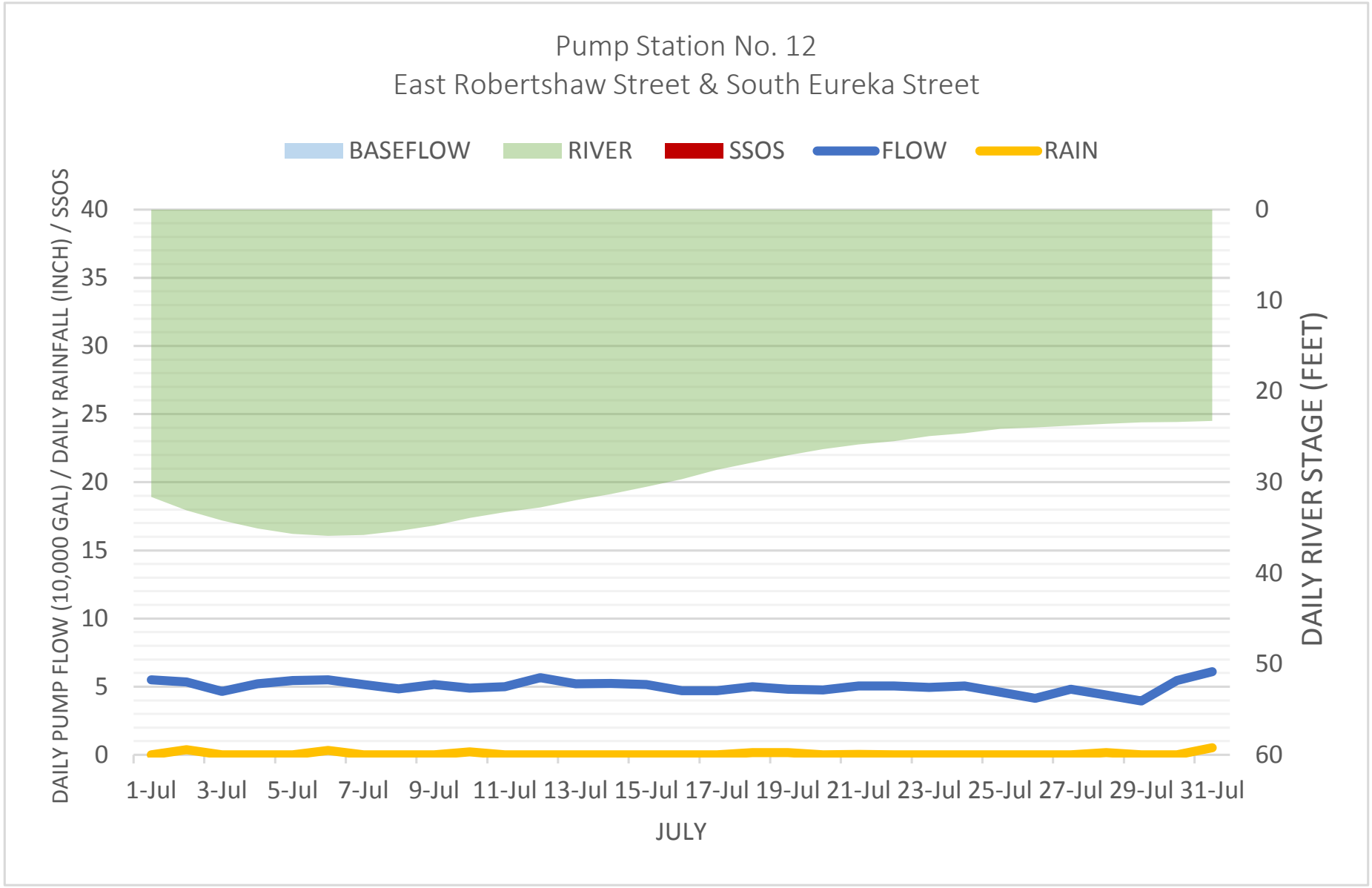
JUNE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East Robertshaw Street & South Eureka Street
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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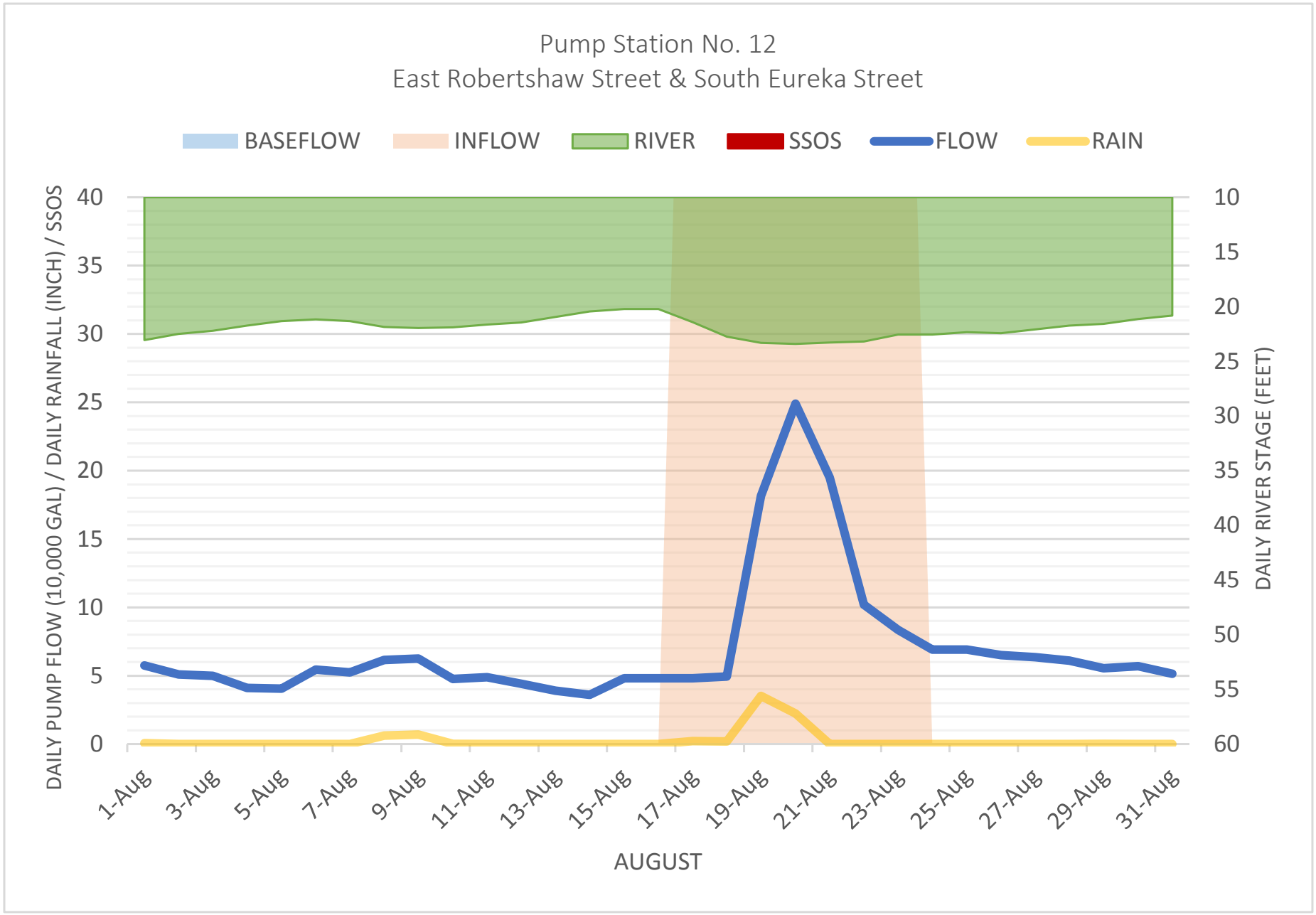
31-Jul
JULY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BASEFLOW
INFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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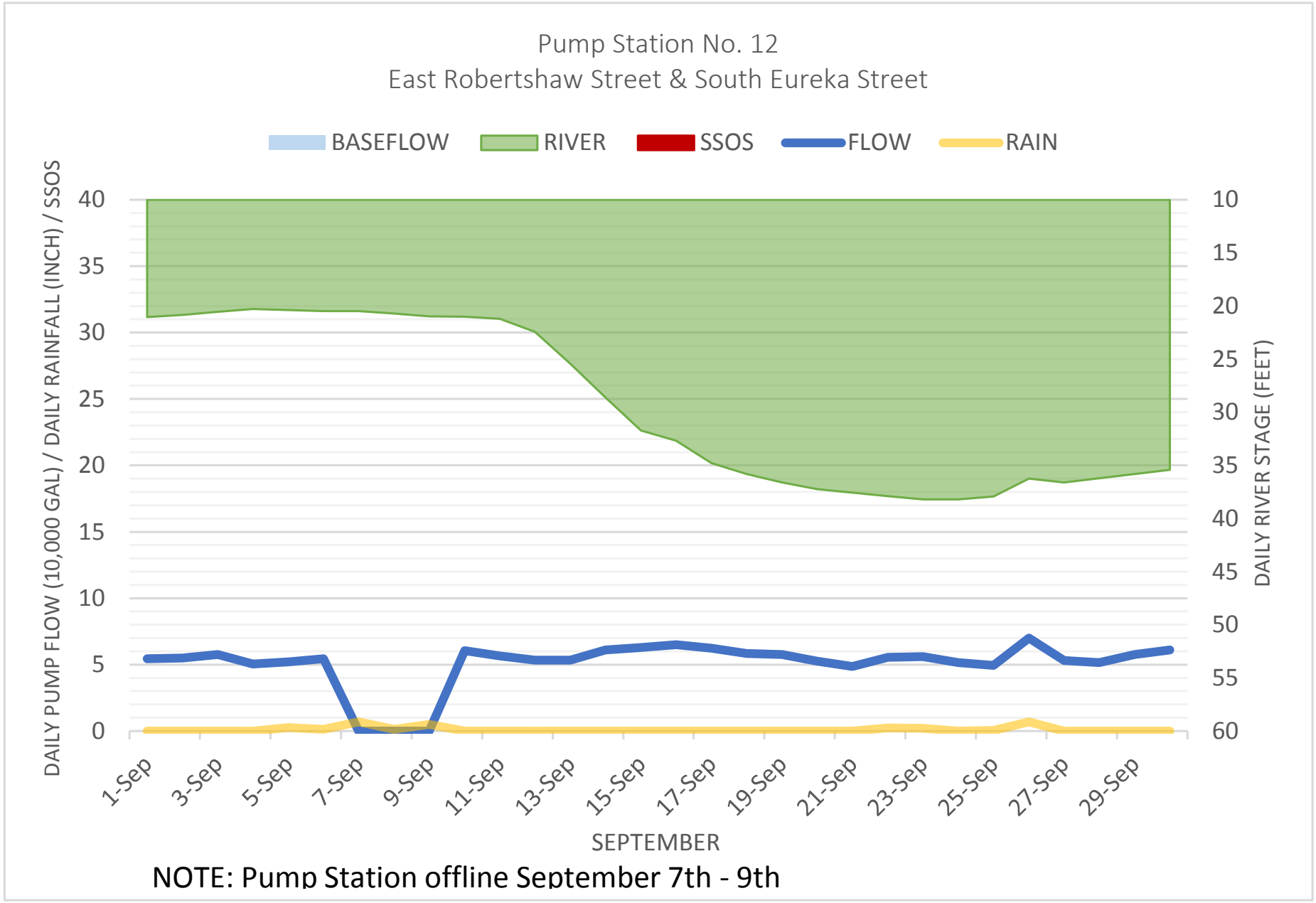
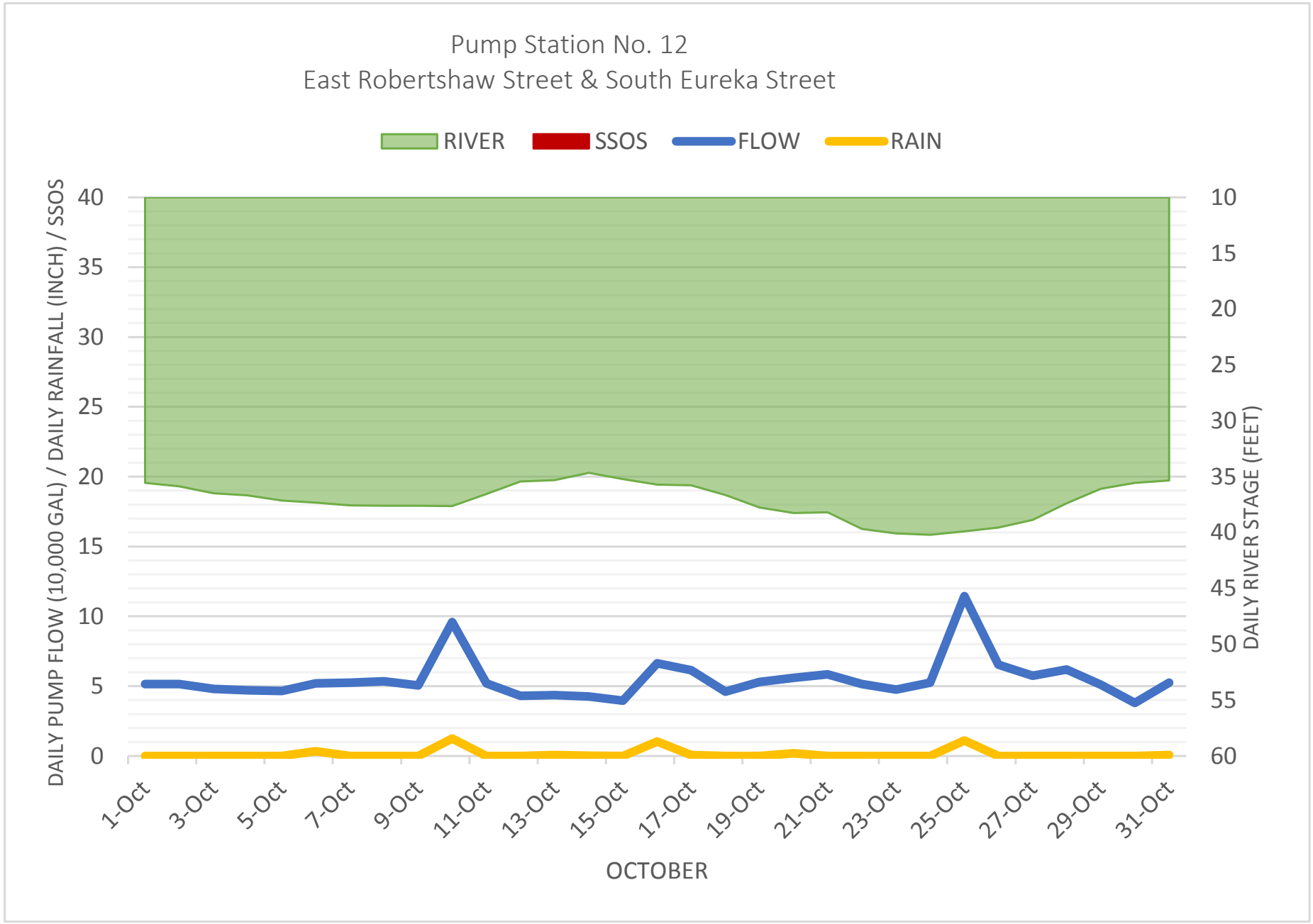
31-Aug
AUGUST



NOTE: Pump Station offline September 7th - 9th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East Robertshaw Street & South Eureka Street
RIVER
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FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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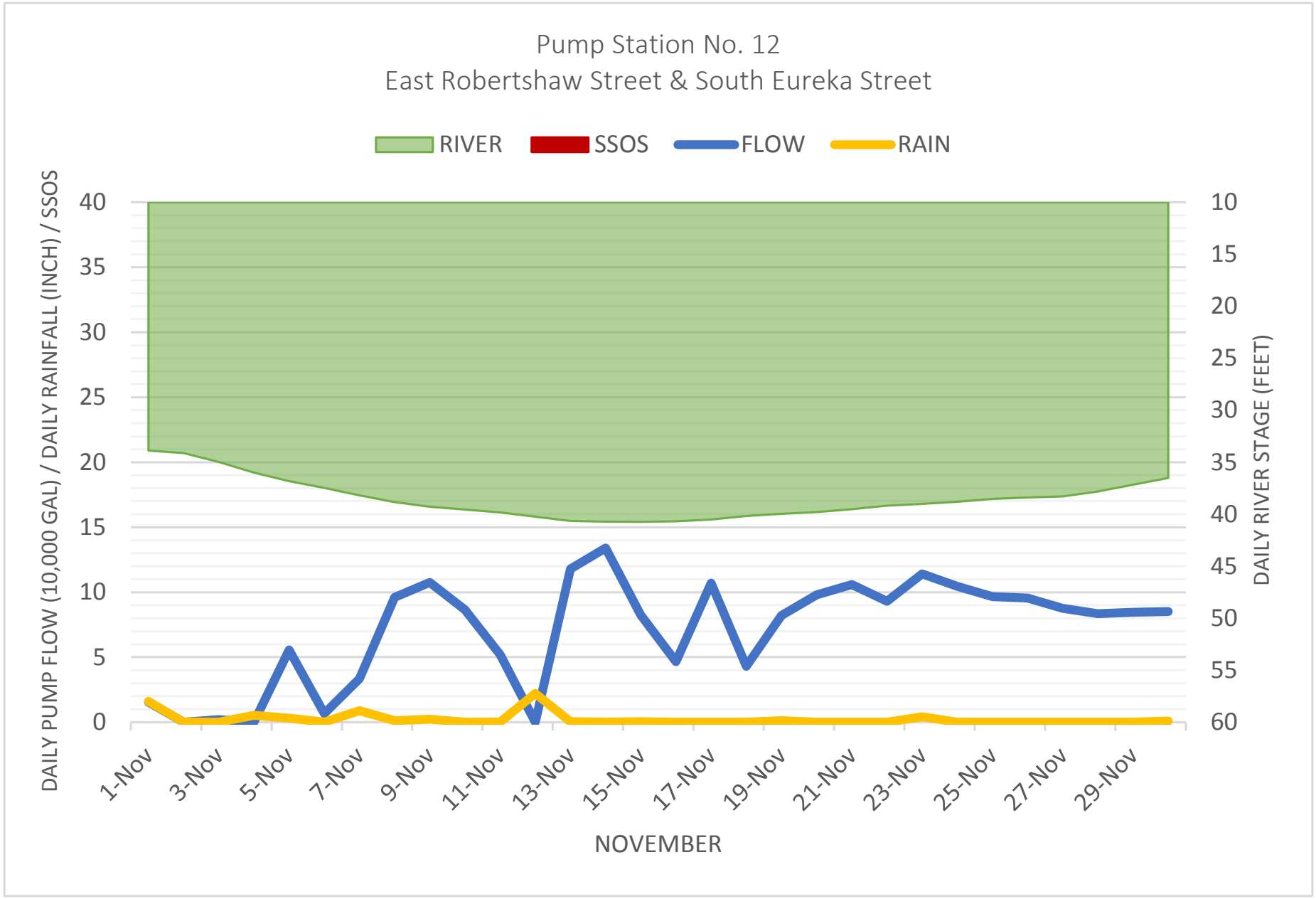
31-Oct
OCTOBER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East Robertshaw Street & South Eureka Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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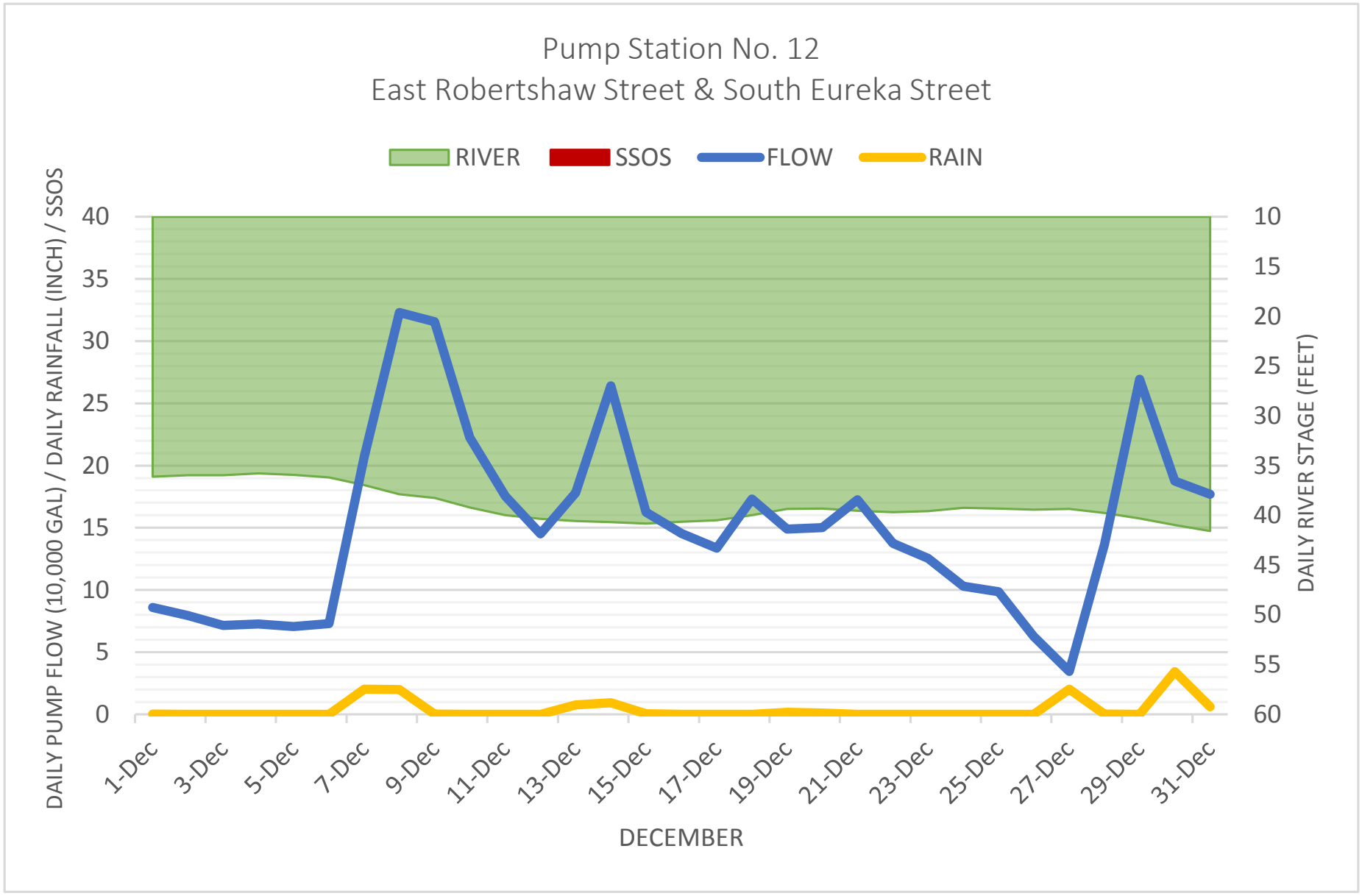
NOVEMBER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East Robertshaw Street & South Eureka Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
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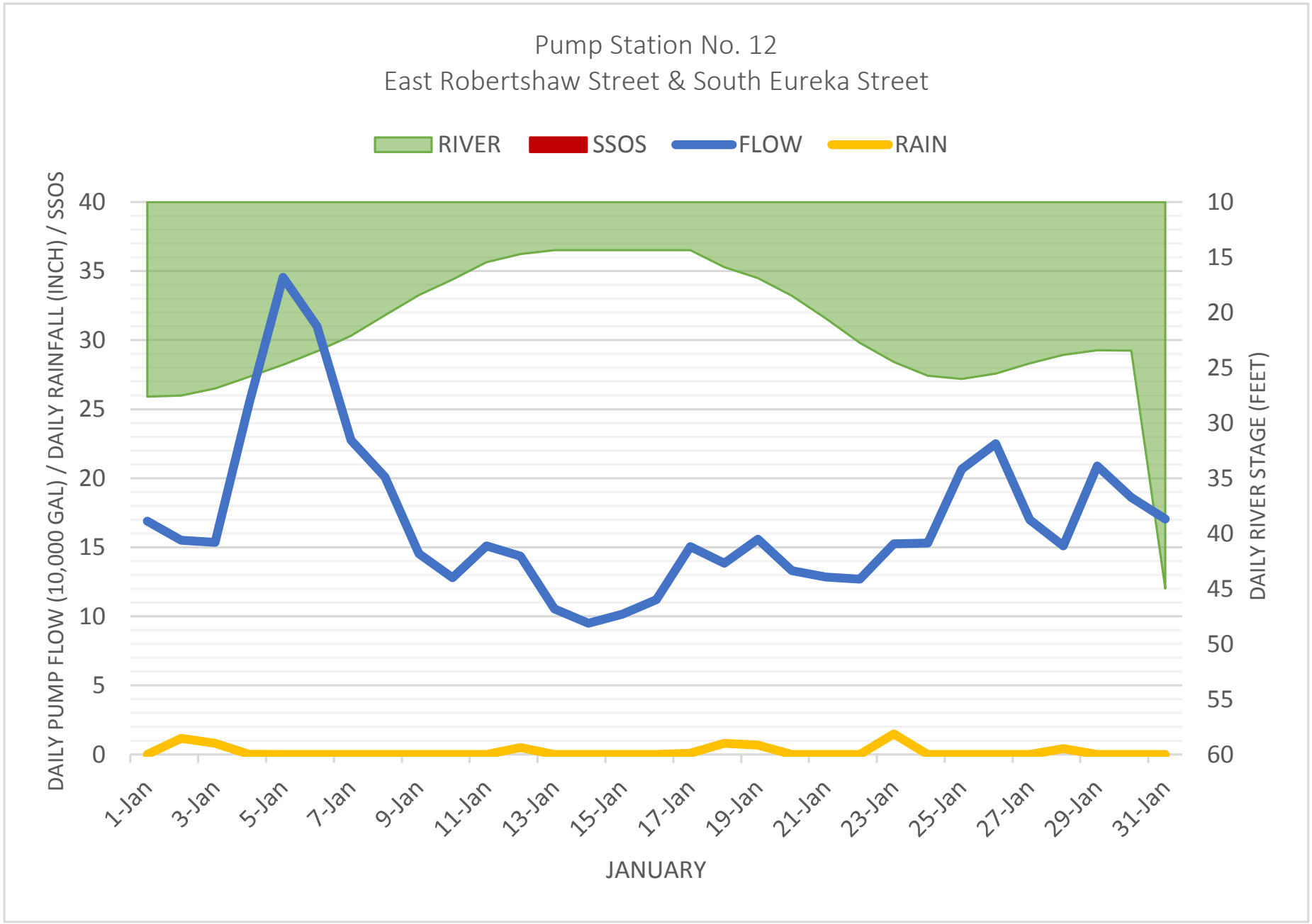
DECEMBER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East Robertshaw Street & South Eureka Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
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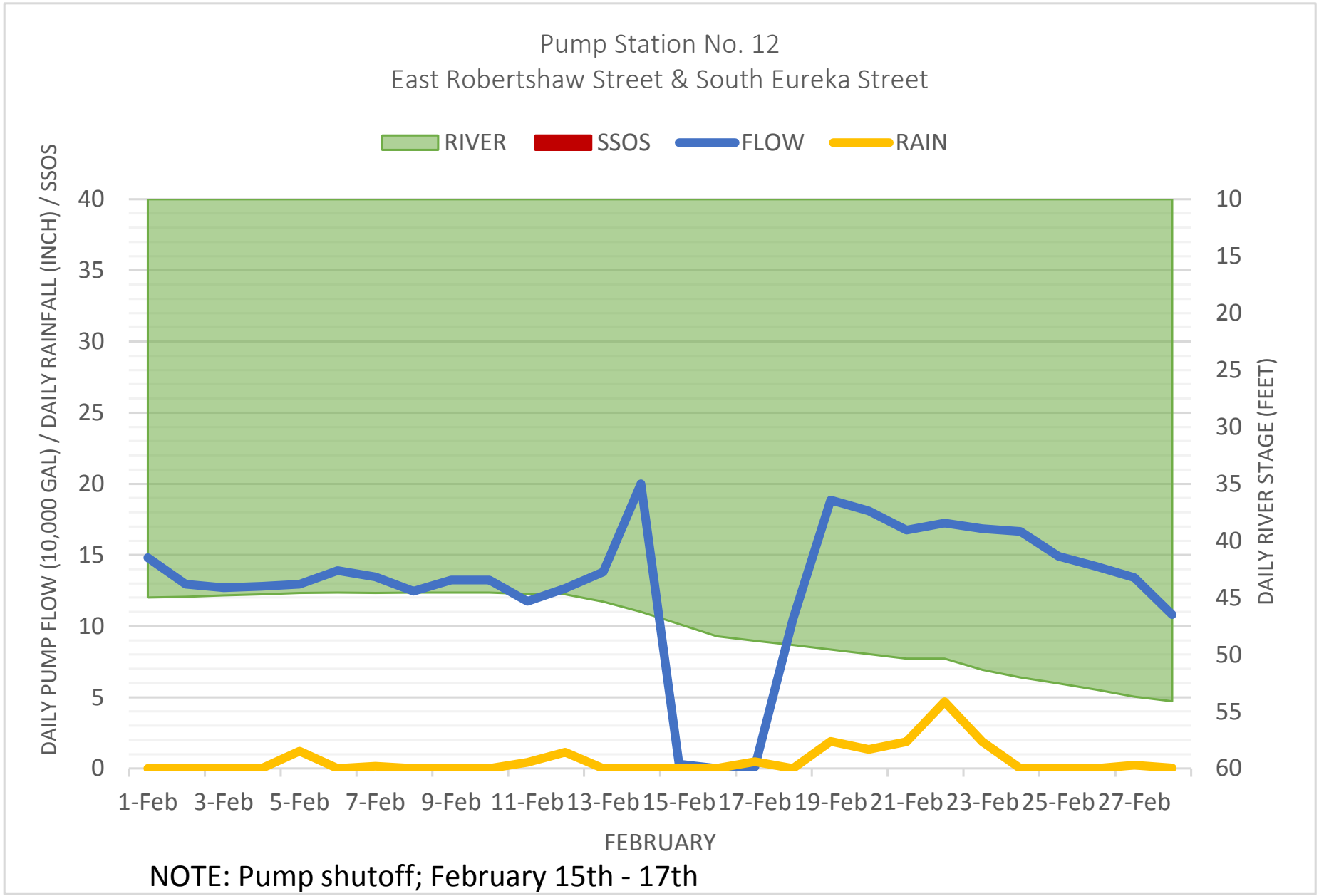
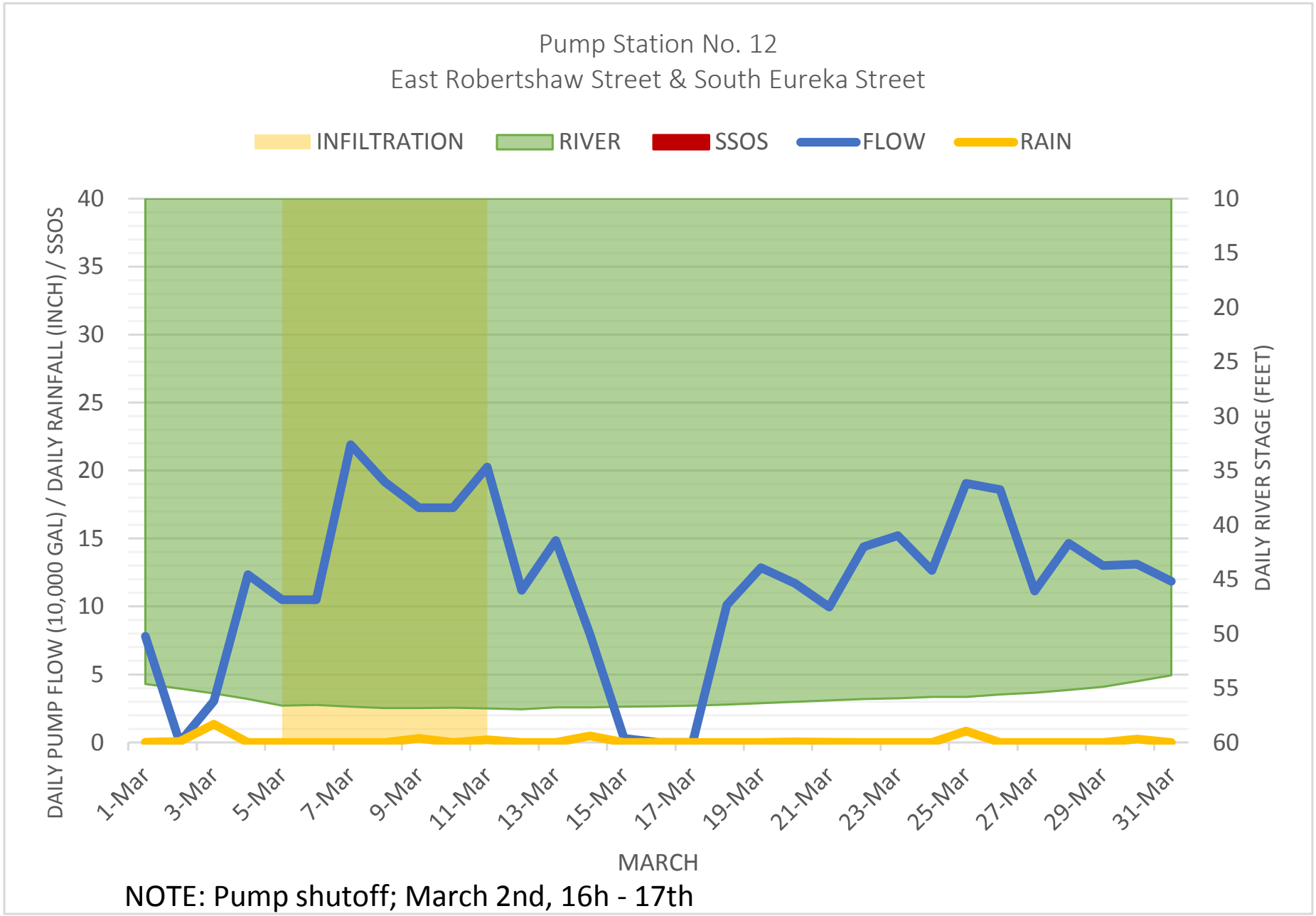
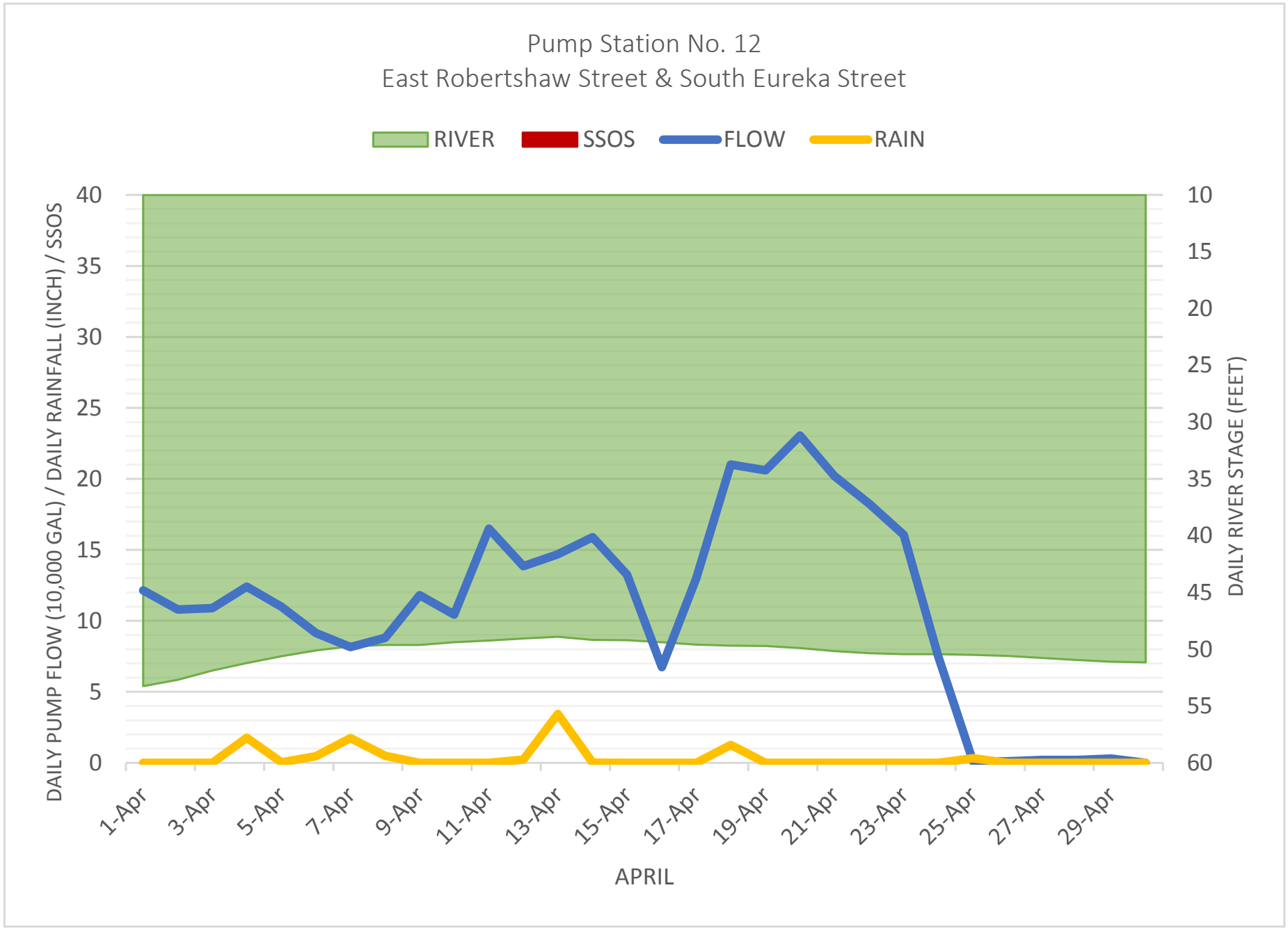
JANUARY



NOTE: Pump shutoff; February 15th - 17th



NOTE: Pump shutoff; March 2nd, 16h - 17th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East Robertshaw Street & South Eureka Street
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RAIN
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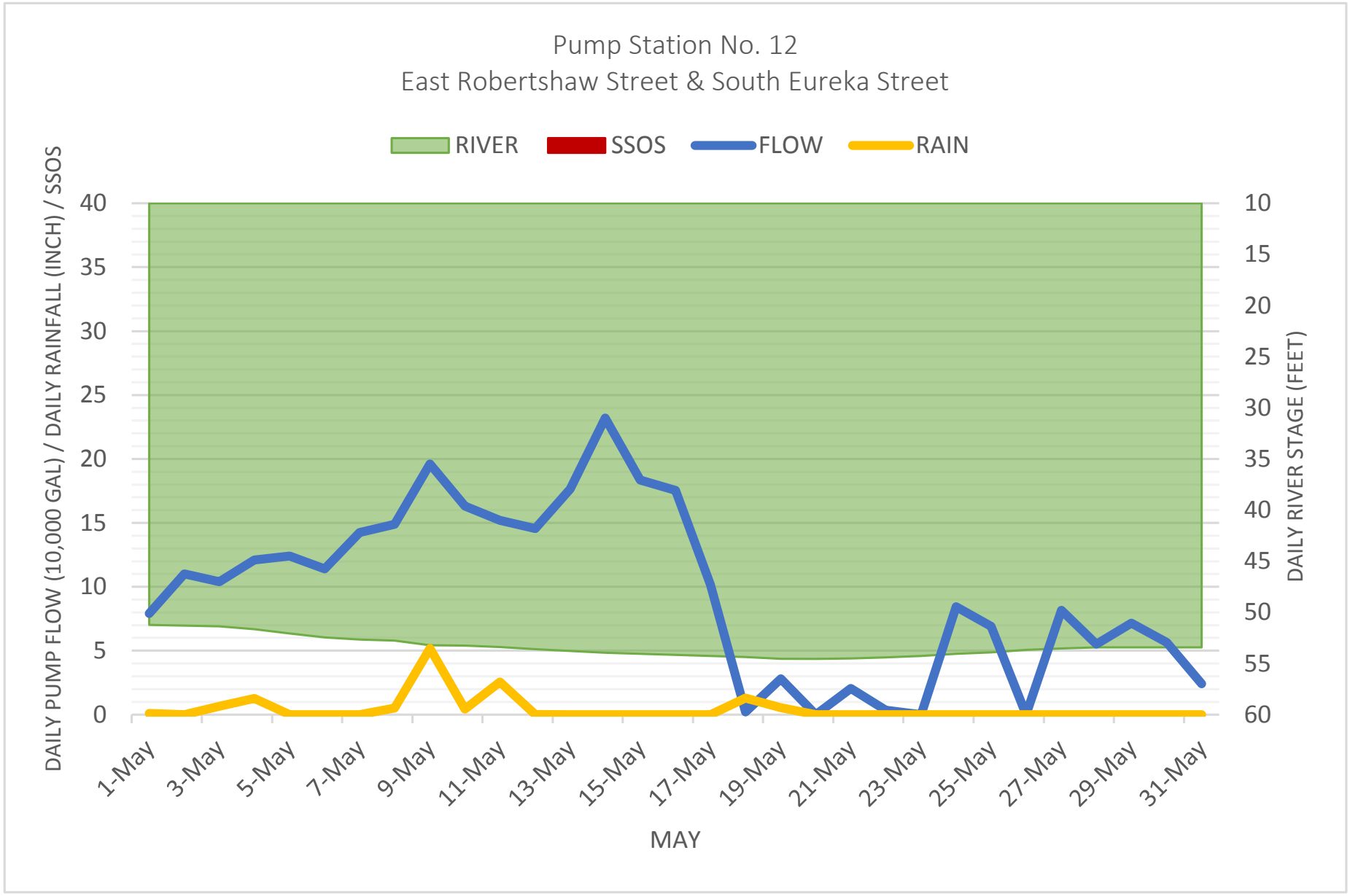
APRIL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DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
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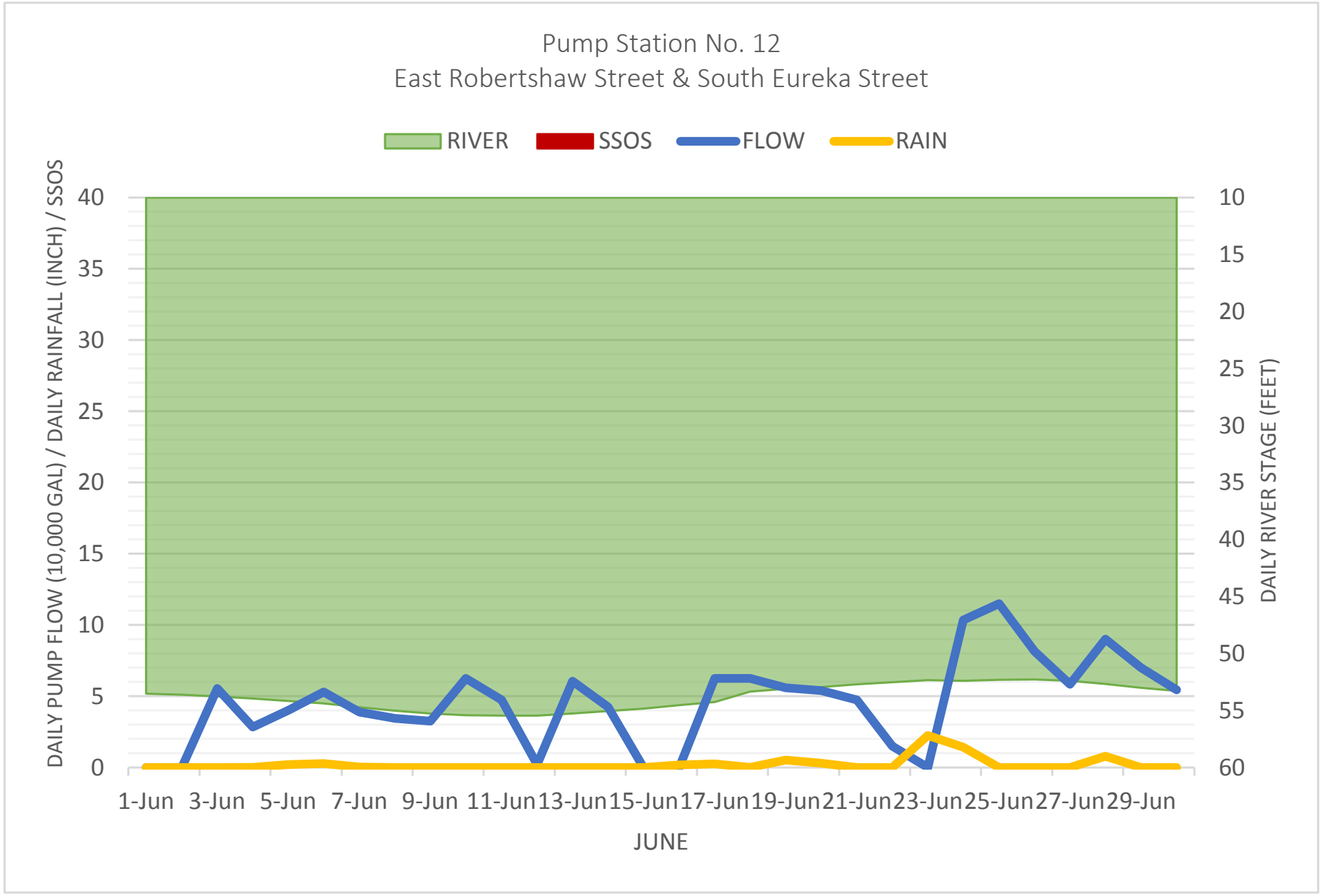
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East Robertshaw Street & South Eureka Street
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SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
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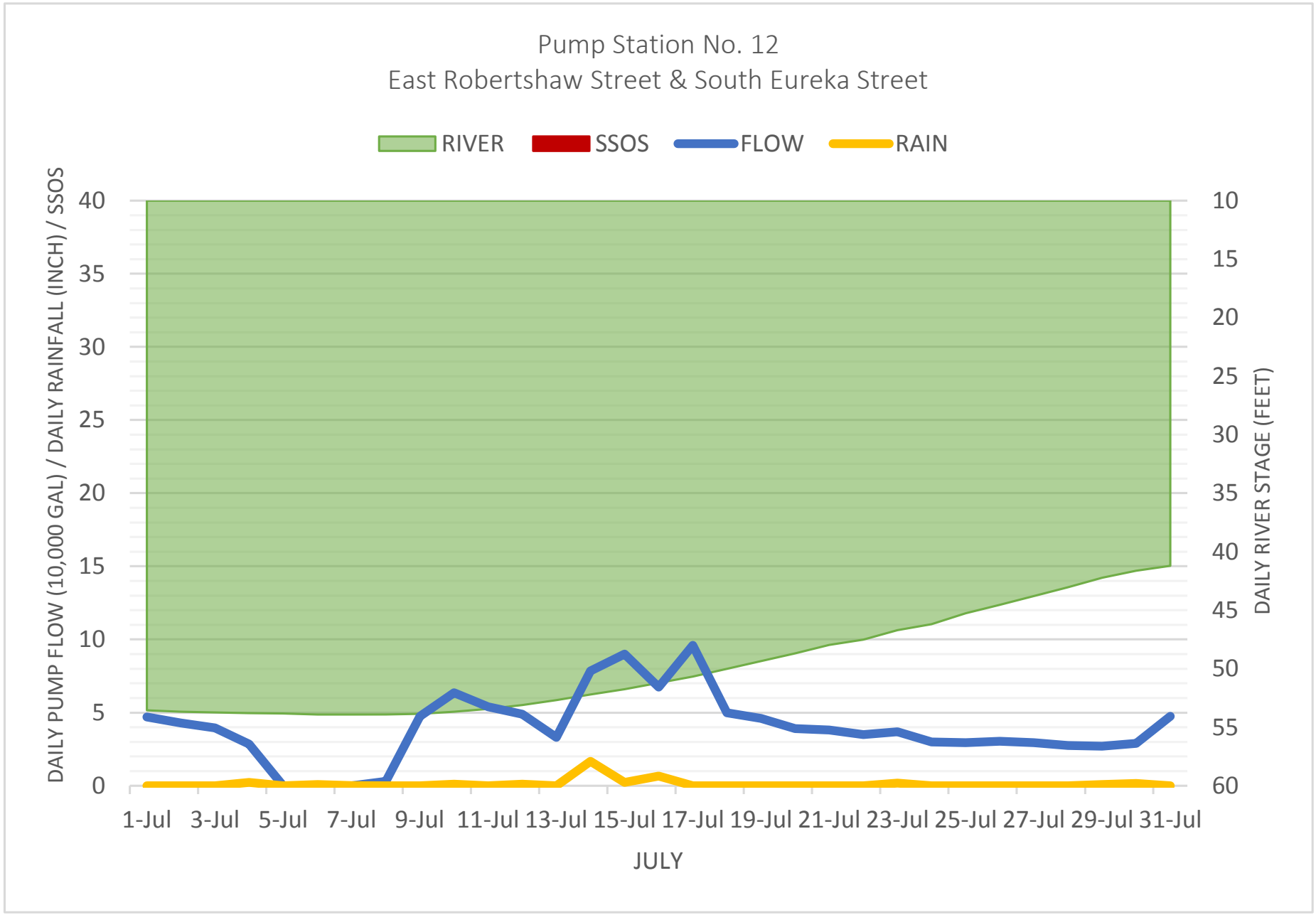
Pump Station No. 12
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FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
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55
60
1-Jul
3-Jul
5-Jul
7-Jul
9-Jul
11-Jul
13-Jul
15-Jul
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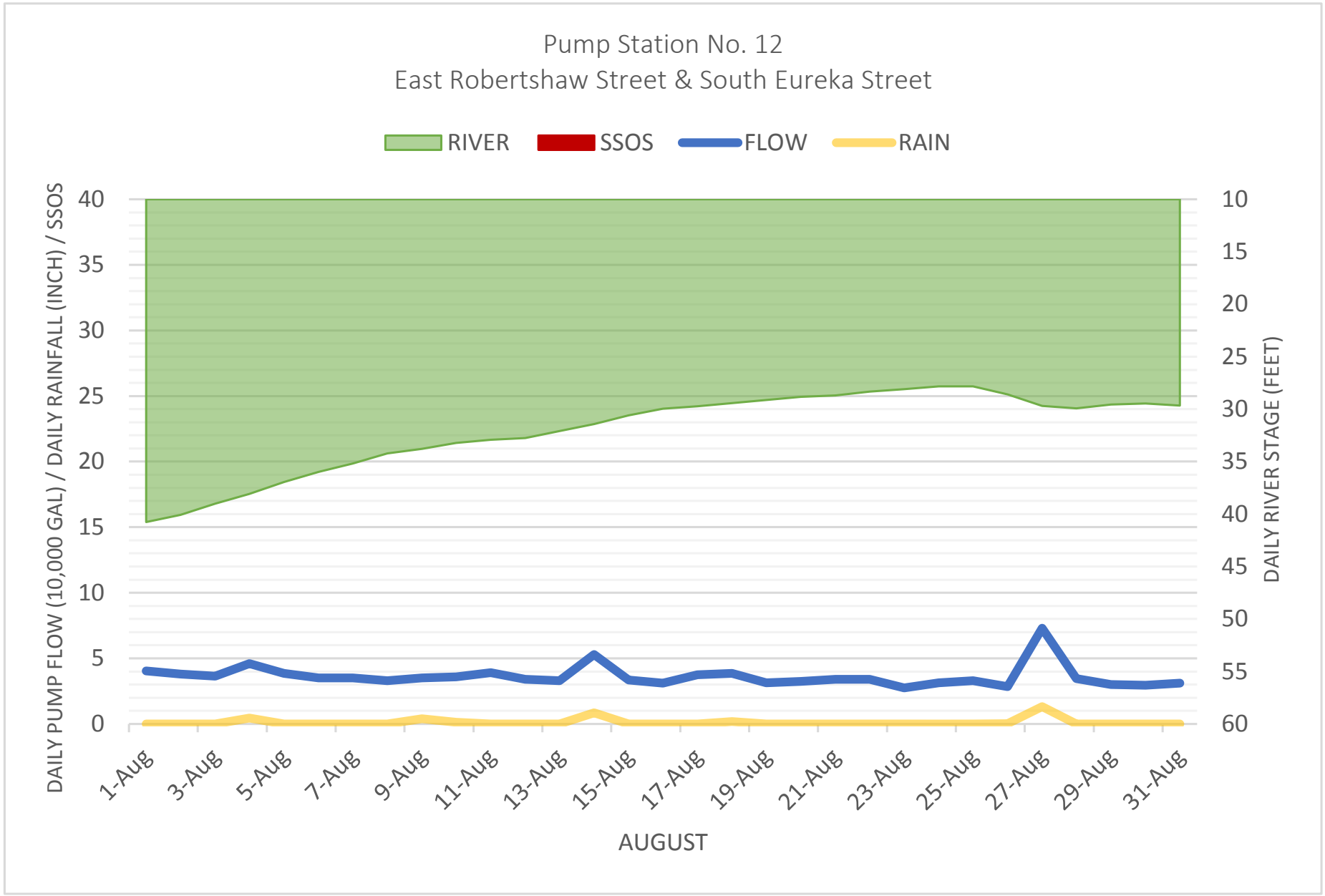
23-Jul
25-Jul
27-Jul
29-Jul
31-Jul
JULY


Pump Station No. 12
East Robertshaw Street & South Eureka Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Aug
3-Aug
5-Aug
7-Aug
9-Aug
11-Aug
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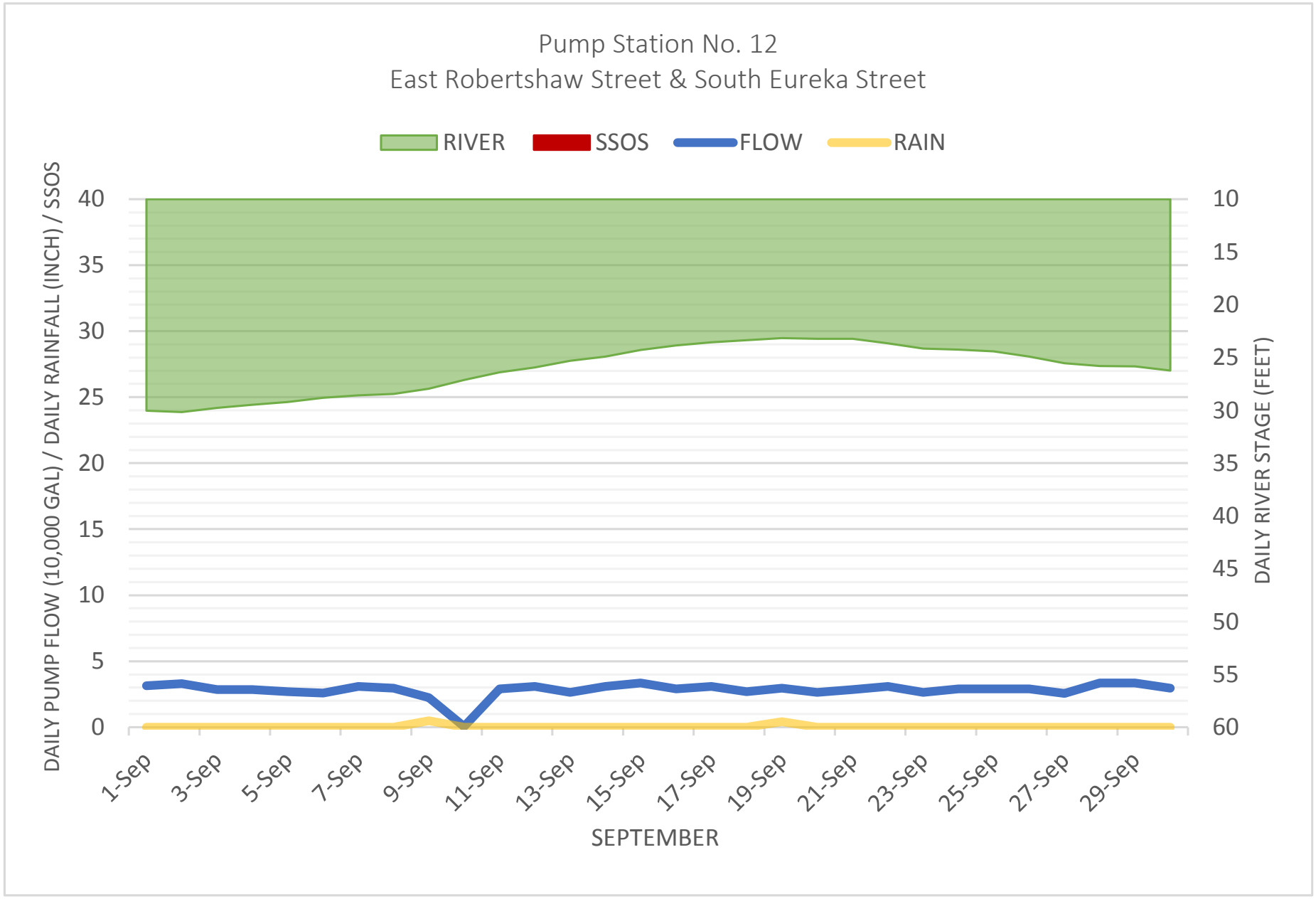
17-Aug
19-Aug
21-Aug
23-Aug
25-Aug
27-Aug
29-Aug
31-Aug
AUGUST


Pump Station No. 12
East Robertshaw Street & South Eureka Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Sep
3-Sep
5-Sep
7-Sep
9-Sep
11-Sep
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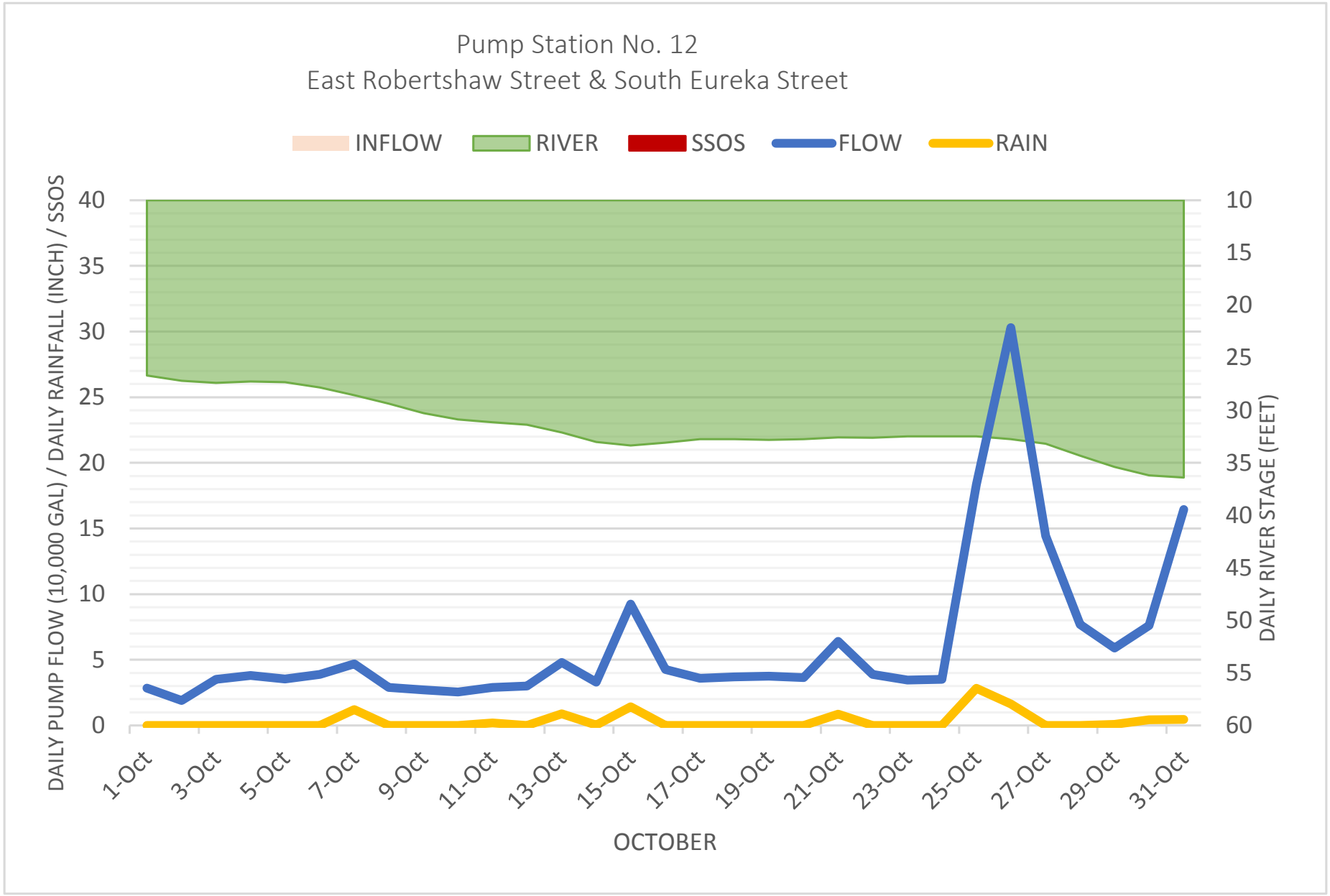
15-Sep
17-Sep
19-Sep
21-Sep
23-Sep
25-Sep
27-Sep
29-Sep
SEPTEMBER


Pump Station No. 12
East Robertshaw Street & South Eureka Street
INFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Oct
3-Oct
5-Oct
7-Oct
9-Oct
11-Oct
13-Oct
15-Oct
17-Oct
19-Oct
21-Oct
23-Oct
25-Oct
27-Oct
29-Oct
31-Oct
OCTOBER

APPENDIX 39

MS28-A/PS46 I/I WORKSHEET

MS28-A/PS46
INFLOW & INFILTRATION WORKSHEET

Infiltration

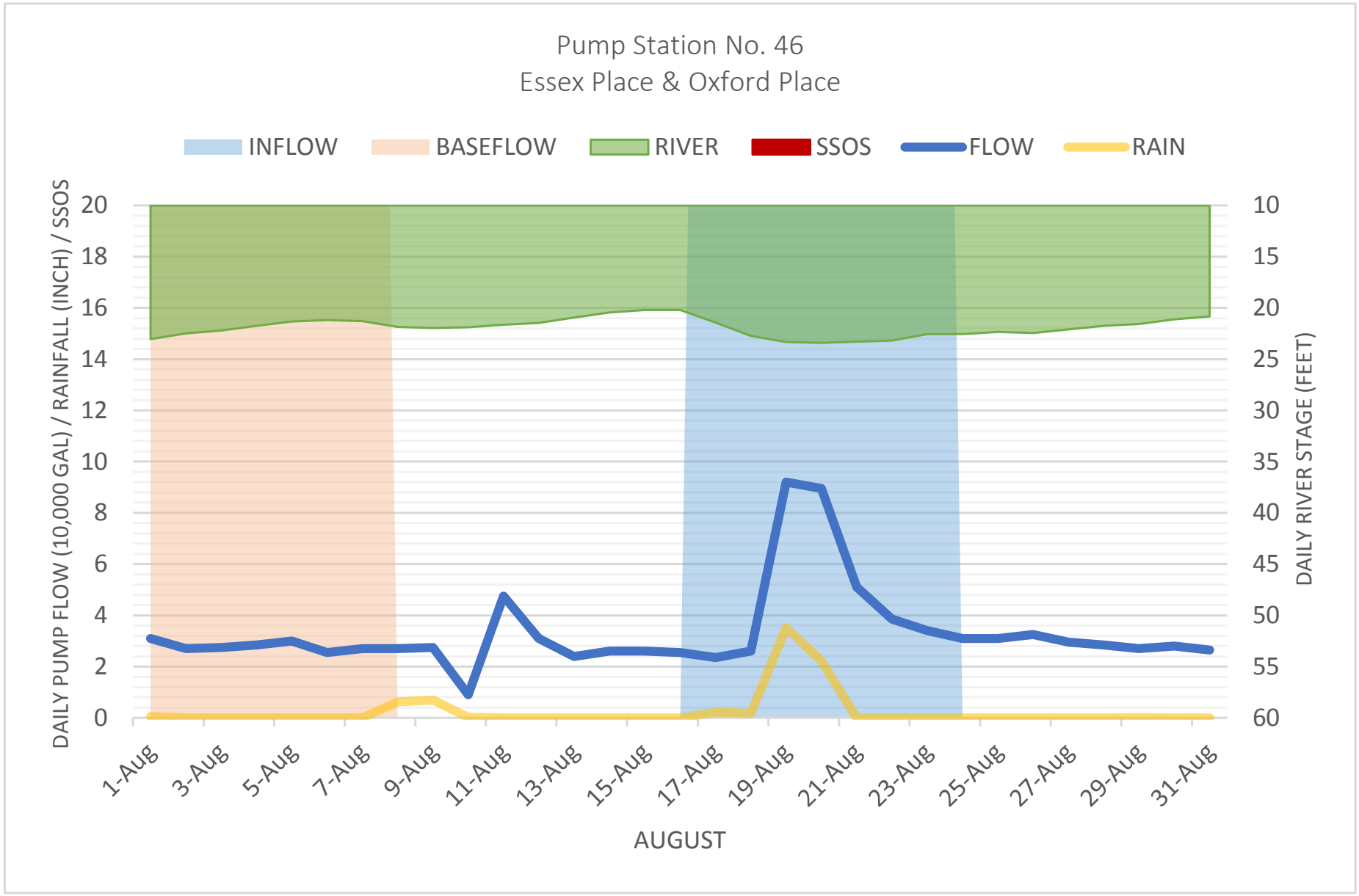
	feet	miles	diameter	inch-miles	
10" Gravity	175	0.033143939	10.00	0.331439	
8" Gravity	10451	1.98	8	15.83485	
laterals	12180	2.31	4	9.227273	
				25.39356	**total inch-miles in system**
		maximum average infiltration	inch-miles		
		17,071.4286	25.39	**672.2739**	**total gpd/idm**

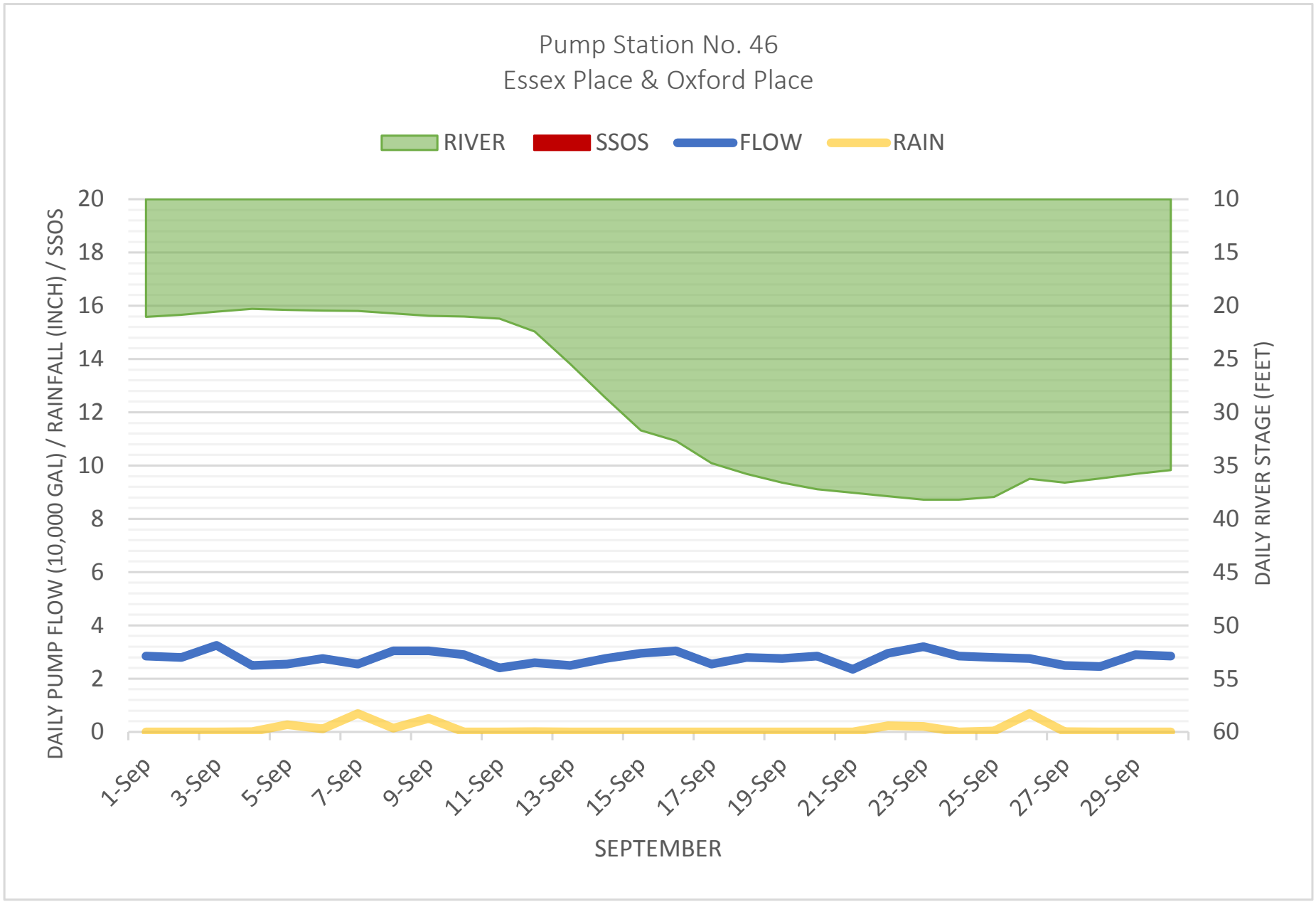
Inflow

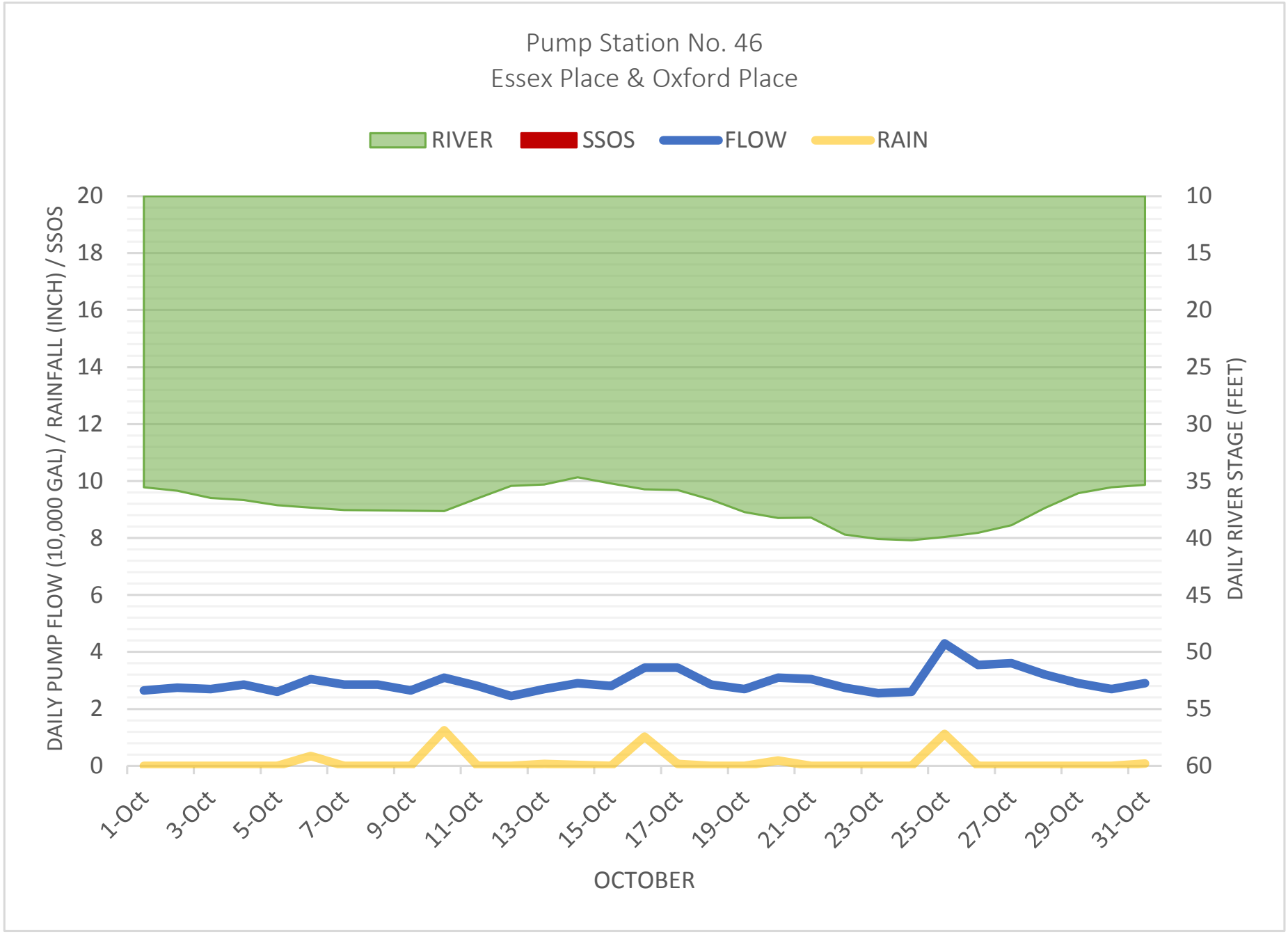
	feet	miles	diameter	inch-miles	
10" Gravity	175	0.033143939	10.00	0.331439	
8" Gravity	10451	1.98	8.00	15.83485	
laterals	12180	2.31	4.00	9.227273	
TOTAL	22631				
				25.39356	**total inch-miles in system**
		maximum average inflow	inch-miles		
		22,571.4286	25.39	**888.8643**	**total gpd/idm**

APPENDIX 40

MS28-A/PS46 GRAPHS


Pump Station No. 46
Essex Place & Oxford Place
INFLOW
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
0
2
4
6
8
10
12
14
16
18
20
10
15
20
25
30
35
40
45
50
55
60
1-Aug
3-Aug
5-Aug
7-Aug
9-Aug
11-Aug
13-Aug
15-Aug
17-Aug
19-Aug
21-Aug
23-Aug
25-Aug
27-Aug
29-Aug
31-Aug
AUGUST


Pump Station No. 46
Essex Place & Oxford Place
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
20
18
16
14
12
10
8
6
4
2
0
10
15
20
25
30
35
40
45
50
55
60
1-Sep
3-Sep
5-Sep
7-Sep
9-Sep
11-Sep
13-Sep
15-Sep
17-Sep
19-Sep
21-Sep
23-Sep
25-Sep
27-Sep
29-Sep
SEPTEMBER


Pump Station No. 46
Essex Place & Oxford Place
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
20
18
16
14
12
10
8
6
4
2
0
10
15
20
25
30
35
40
45
50
55
60
1-Oct
3-Oct
5-Oct
7-Oct
9-Oct
11-Oct
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15-Oct
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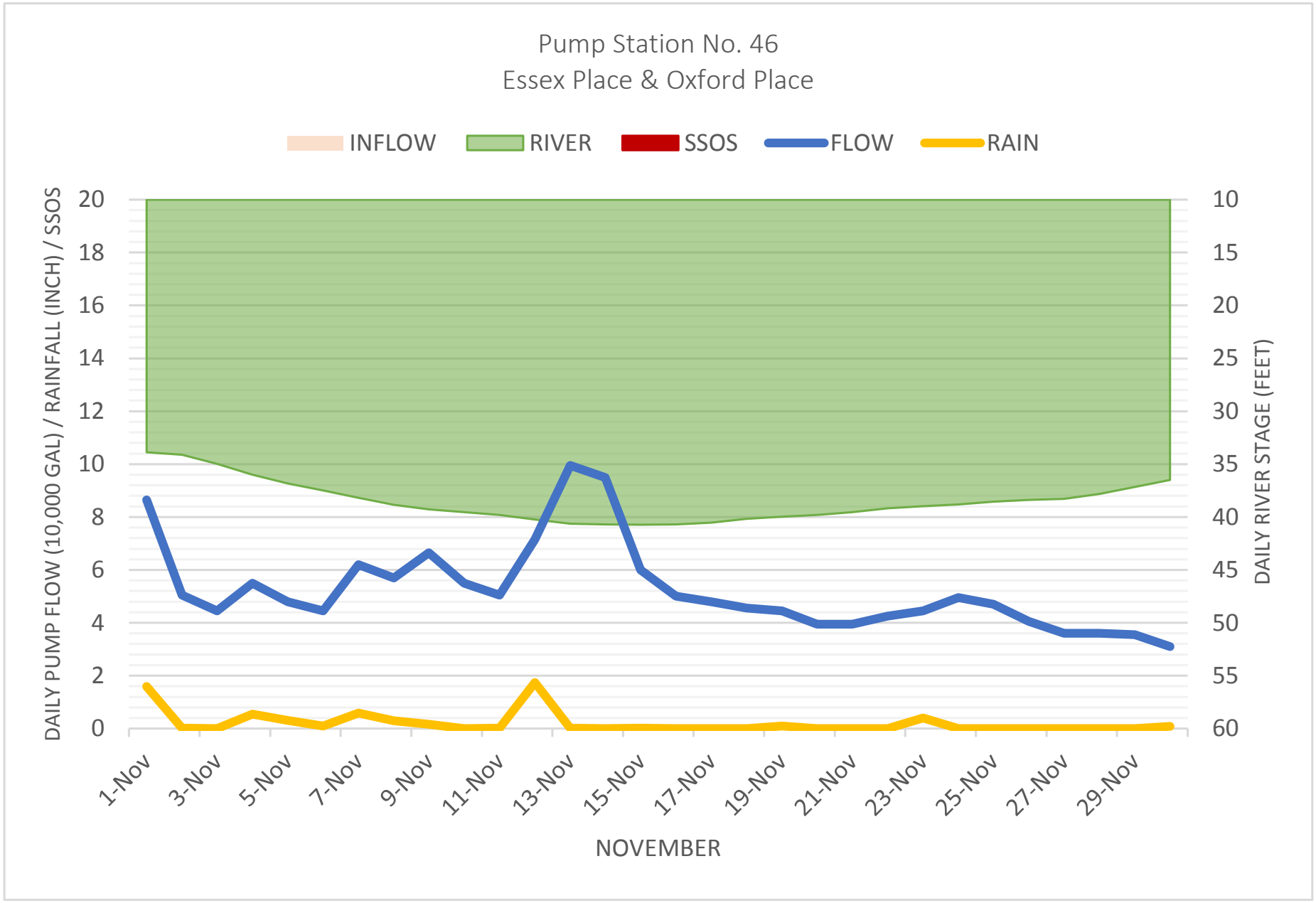
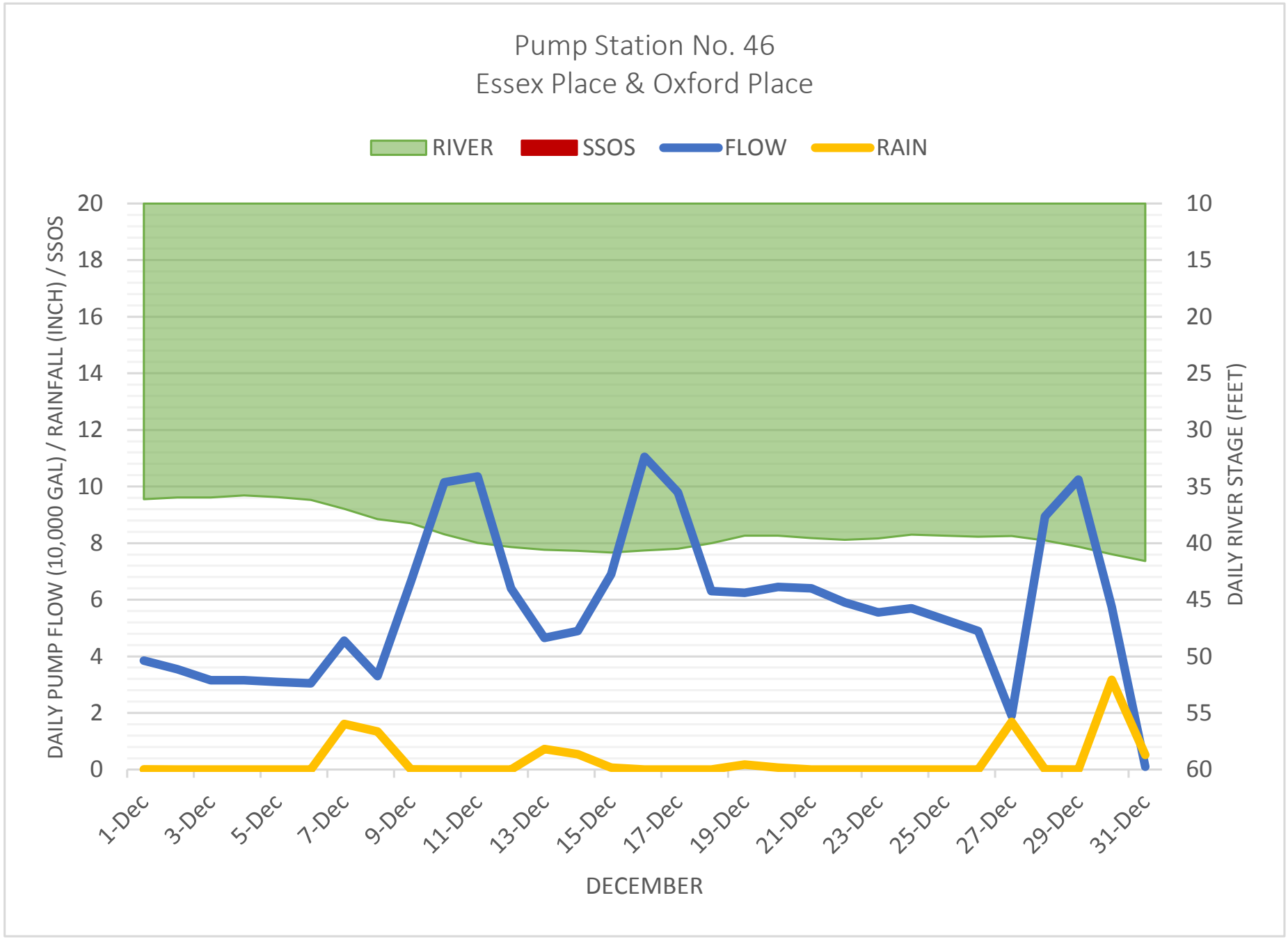
19-Oct
21-Oct
23-Oct
25-Oct
27-Oct
29-Oct
31-Oct
OCTOBER


Pump Station No. 46
Essex Place & Oxford Place
INFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
20
18
16
14
12
10
8
6
4
2
0
10
15
20
25
30
35
40
45
50
55
60
1-Nov
3-Nov
5-Nov
7-Nov
9-Nov
11-Nov
13-Nov
15-Nov
17-Nov
19-Nov
21-Nov
23-Nov
25-Nov
27-Nov
29-Nov
NOVEMBER


Pump Station No. 46
Essex Place & Oxford Place
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
20
18
16
14
12
10
8
6
4
2
0
10
15
20
25
30
35
40
45
50
55
60
1-Dec
3-Dec
5-Dec
7-Dec
9-Dec
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17-Dec
19-Dec
21-Dec
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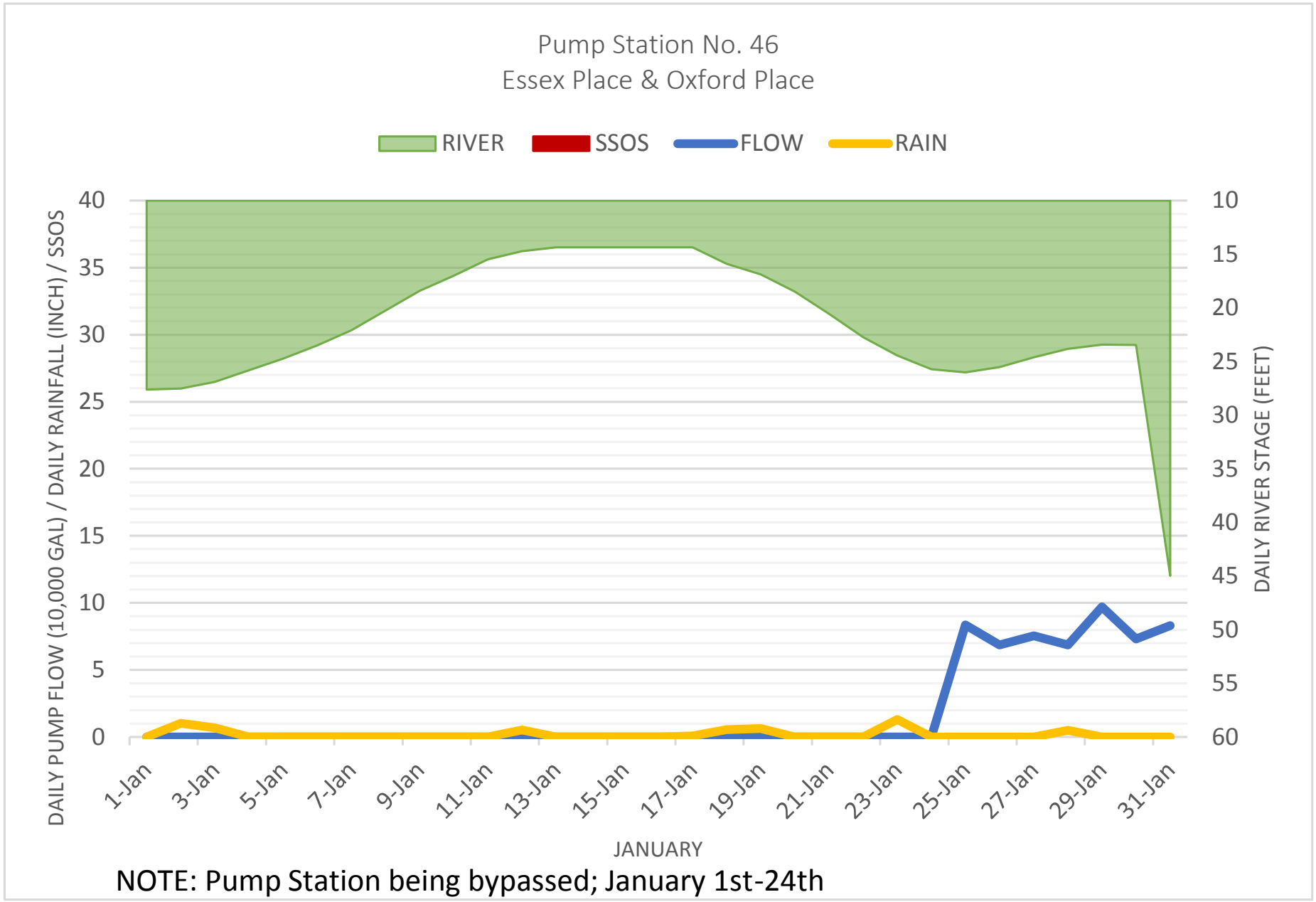
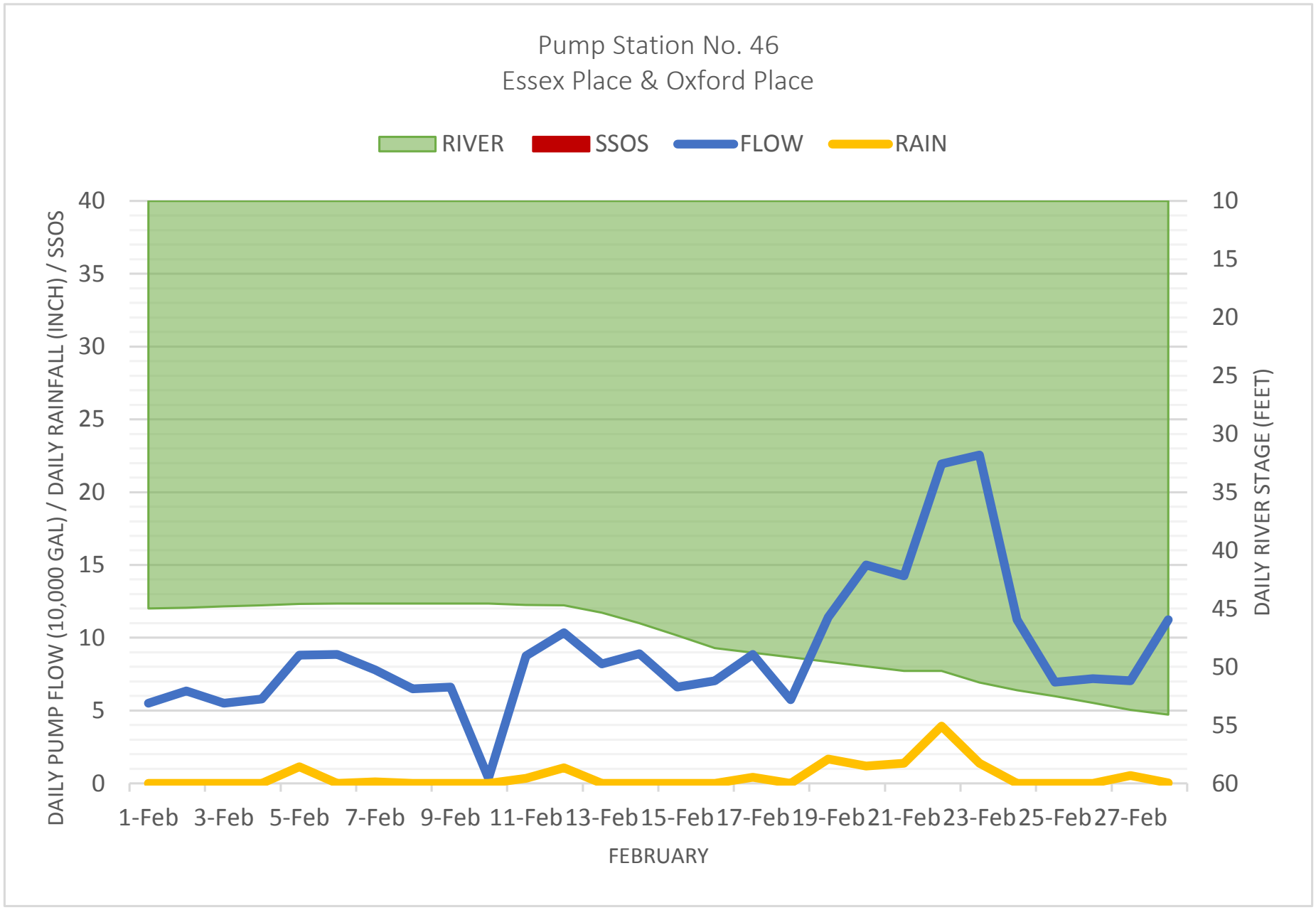
25-Dec
27-Dec
29-Dec
31-Dec
DECEMBER



NOTE: Pump Station being bypassed; January 1st-24th


Pump Station No. 46
Essex Place & Oxford Place
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Feb
3-Feb
5-Feb
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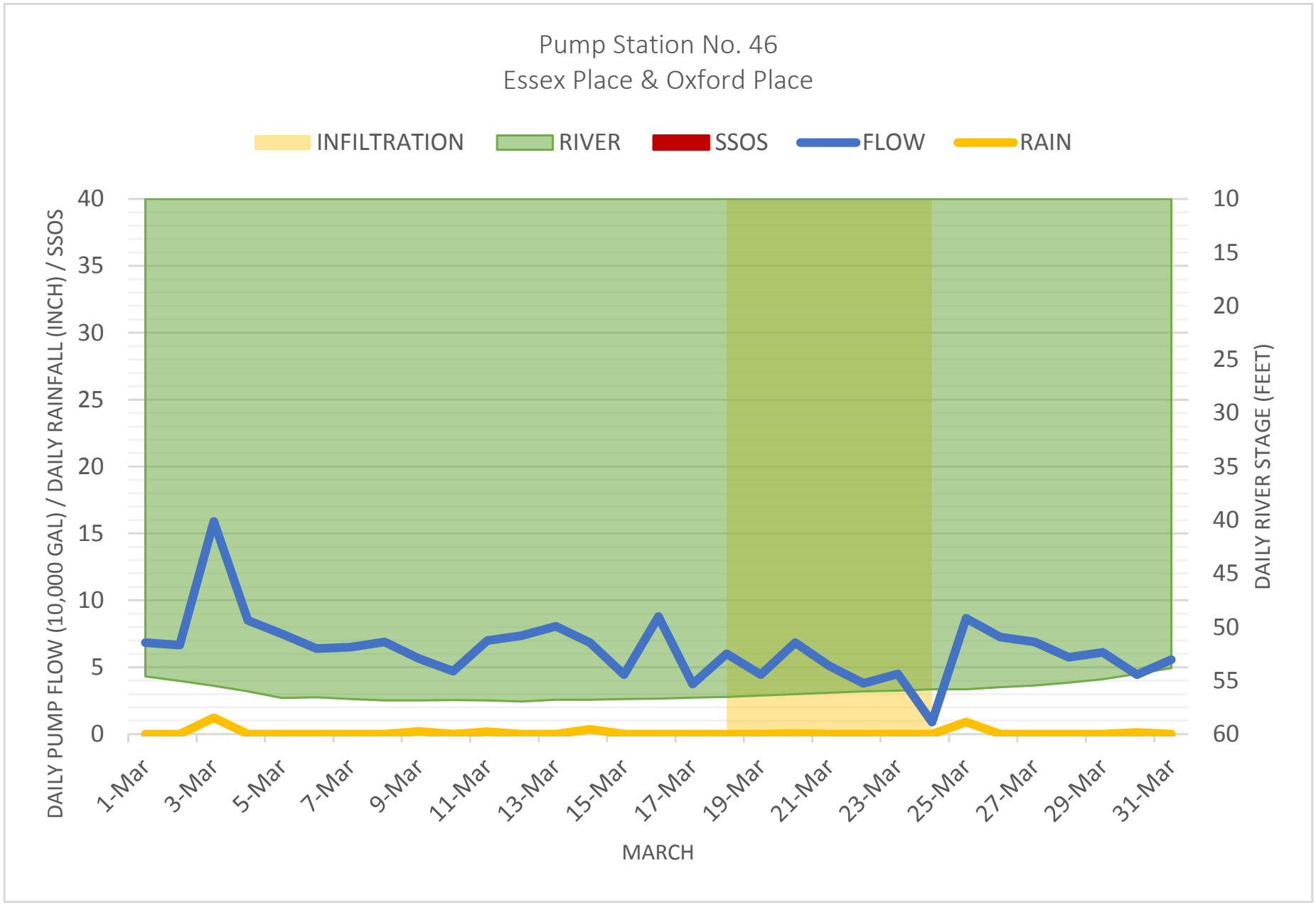
15-Feb
17-Feb
19-Feb
21-Feb
23-Feb
25-Feb
27-Feb
FEBRUARY


Pump Station No. 46
Essex Place & Oxford Place
INFILTRATION
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Mar
3-Mar
5-Mar
7-Mar
9-Mar
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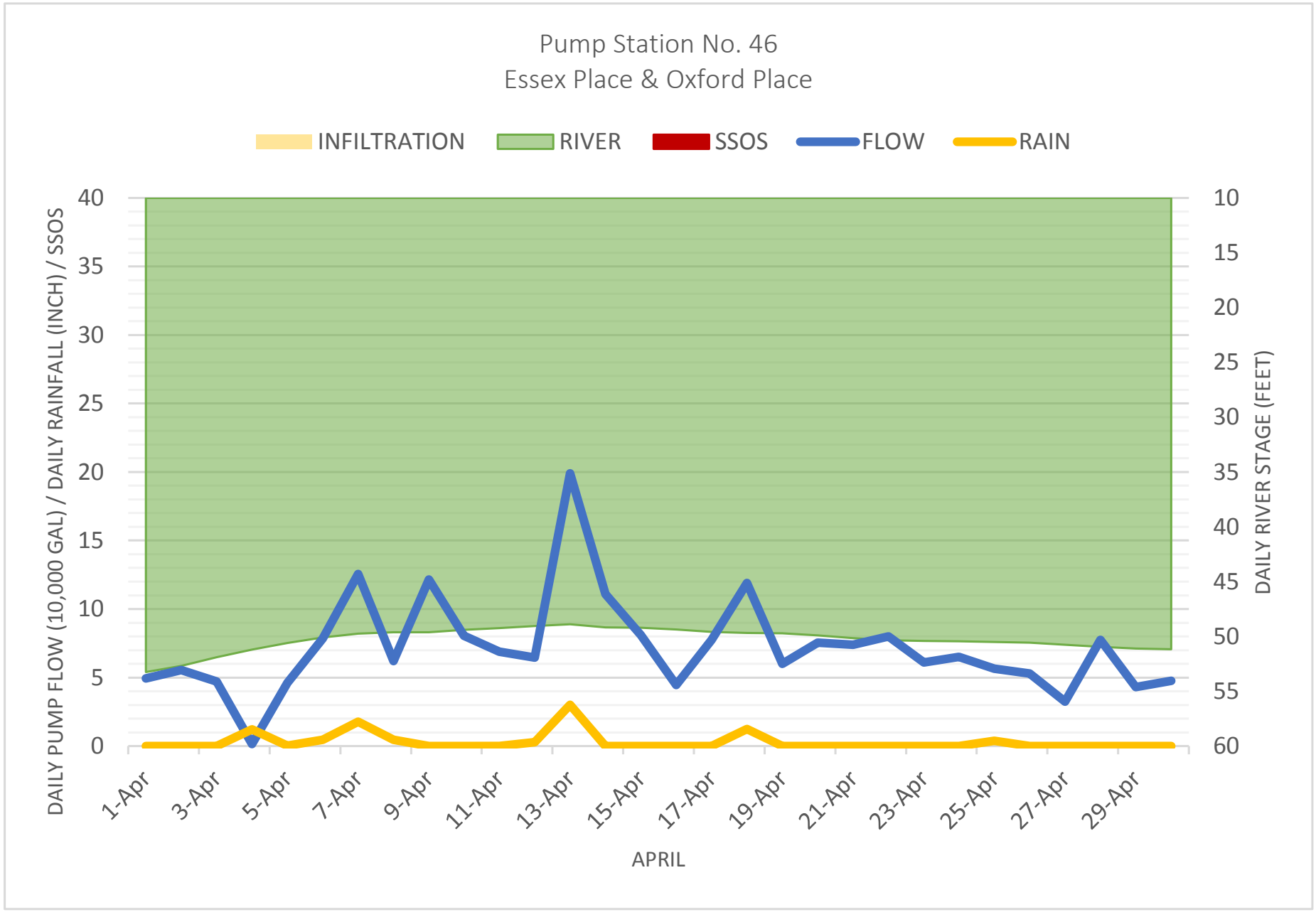
27-Mar
29-Mar
31-Mar
MARCH


Pump Station No. 46
Essex Place & Oxford Place
INFILTRATION
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
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35
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45
50
55
60
1-Apr
3-Apr
5-Apr
7-Apr
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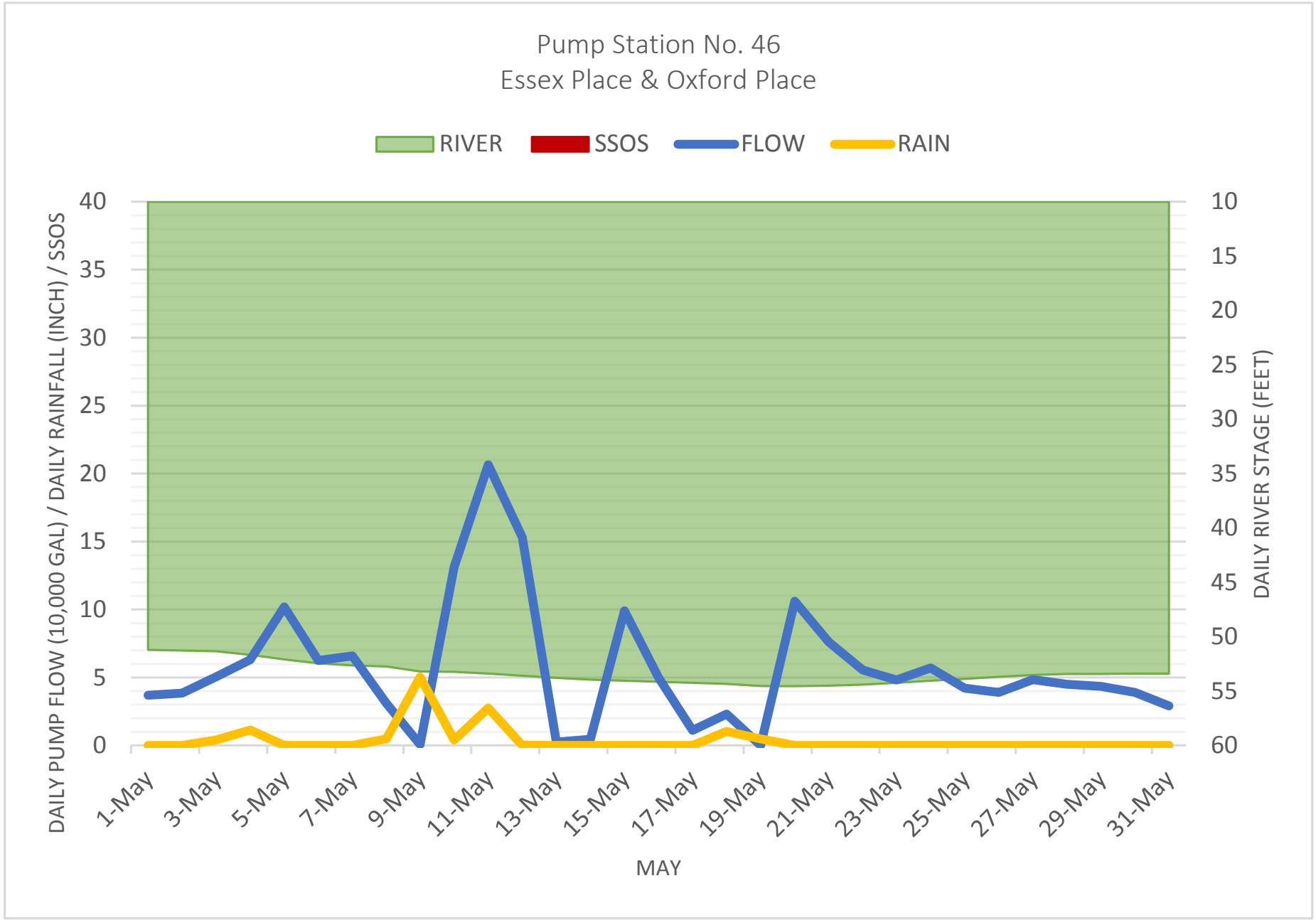
23-Apr
25-Apr
27-Apr
29-Apr
APRIL


Pump Station No. 46
Essex Place & Oxford Place
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
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25
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35
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55
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1-May
3-May
5-May
7-May
9-May
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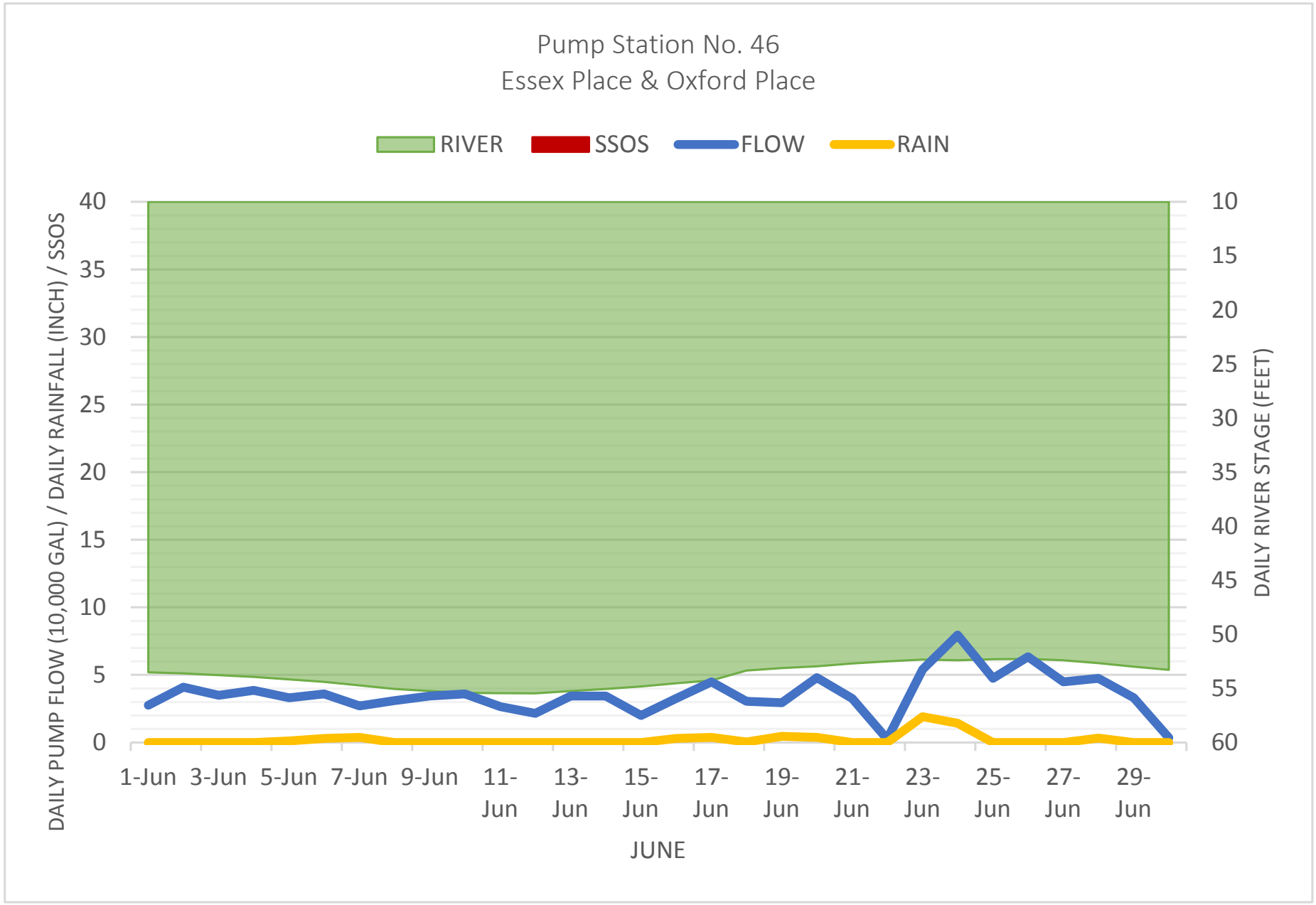
25-May
27-May
29-May
31-May
MAY


Pump Station No. 46
Essex Place & Oxford Place
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
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1-Jun
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5-Jun
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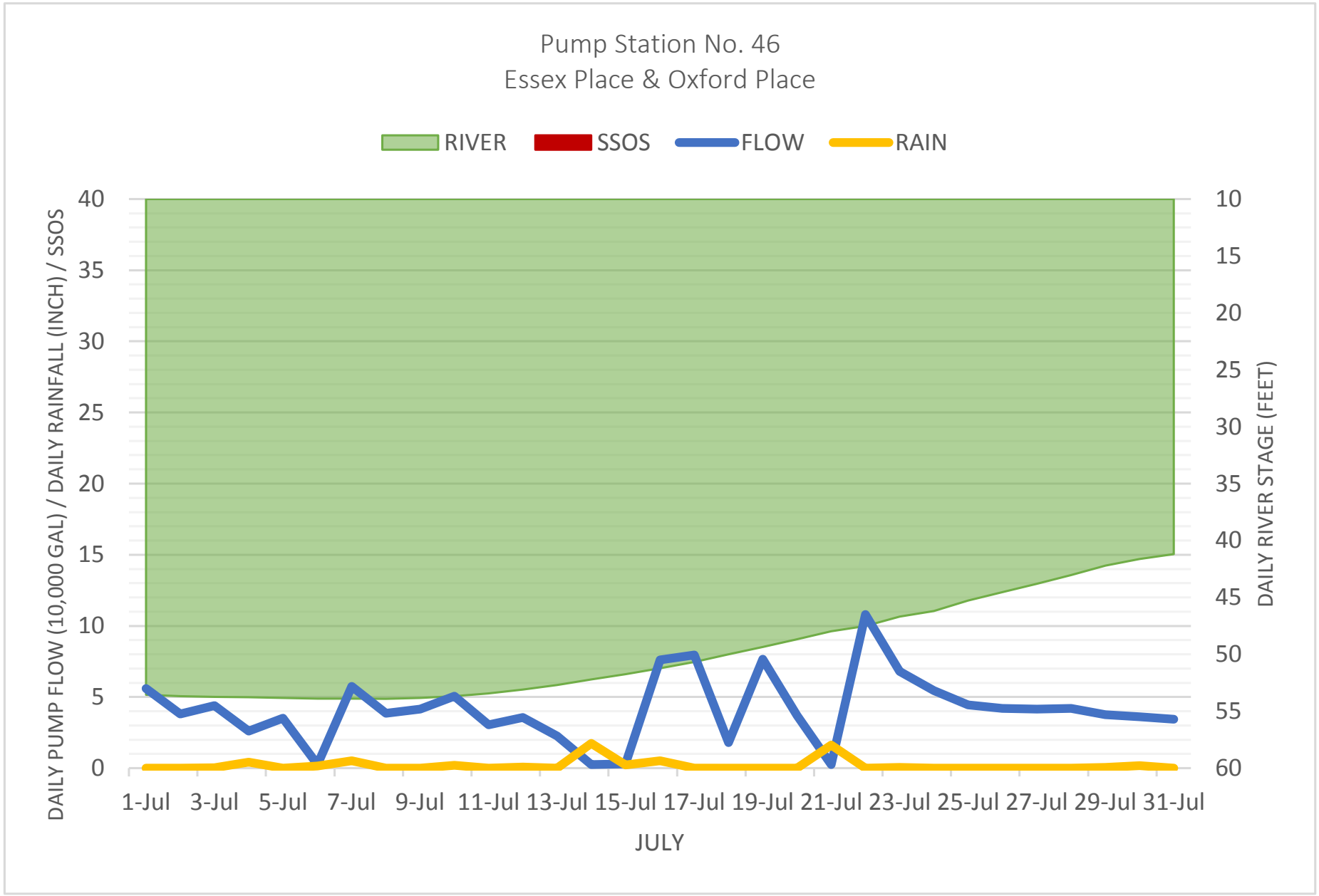
27-Jun
29-Jun
JUNE


Pump Station No. 46
Essex Place & Oxford Place
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
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7-Jul
9-Jul
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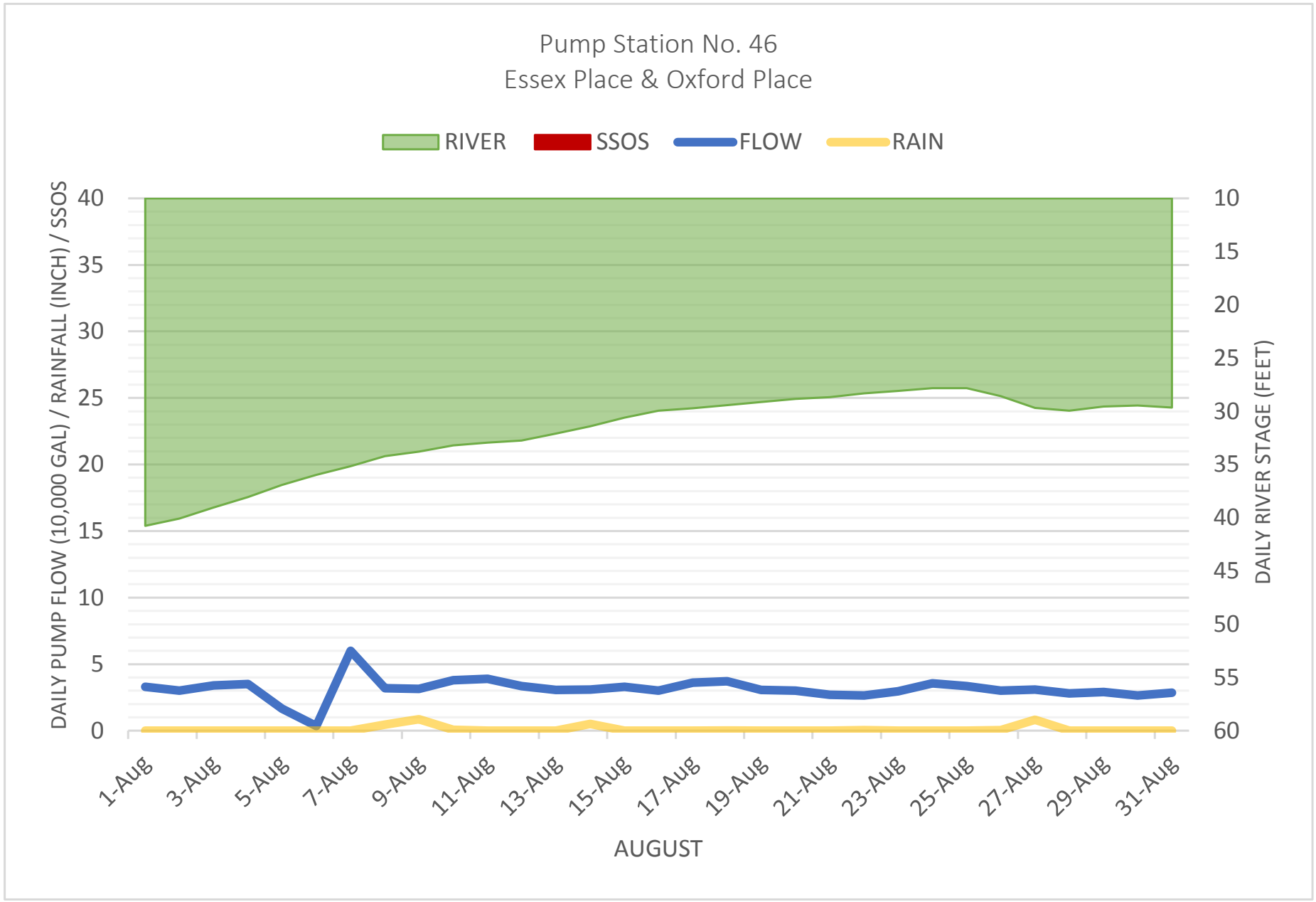
29-Jul
31-Jul
JULY


Pump Station No. 46
Essex Place & Oxford Place
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Aug
3-Aug
5-Aug
7-Aug
9-Aug
11-Aug
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25-Aug
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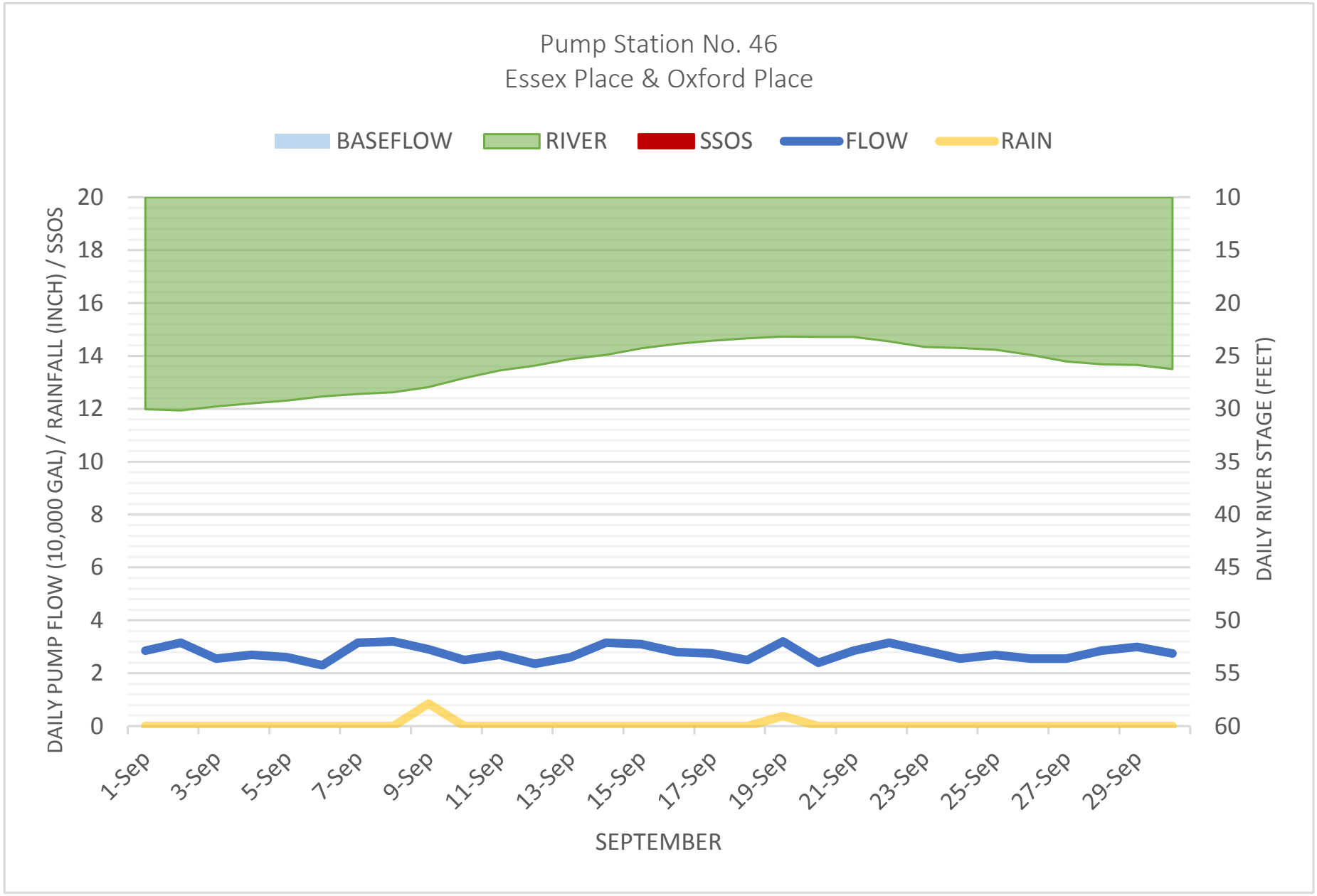
29-Aug
31-Aug
AUGUST


Pump Station No. 46
Essex Place & Oxford Place
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
20
18
16
14
12
10
8
6
4
2
0
10
15
20
25
30
35
40
45
50
55
60
1-Sep
3-Sep
5-Sep
7-Sep
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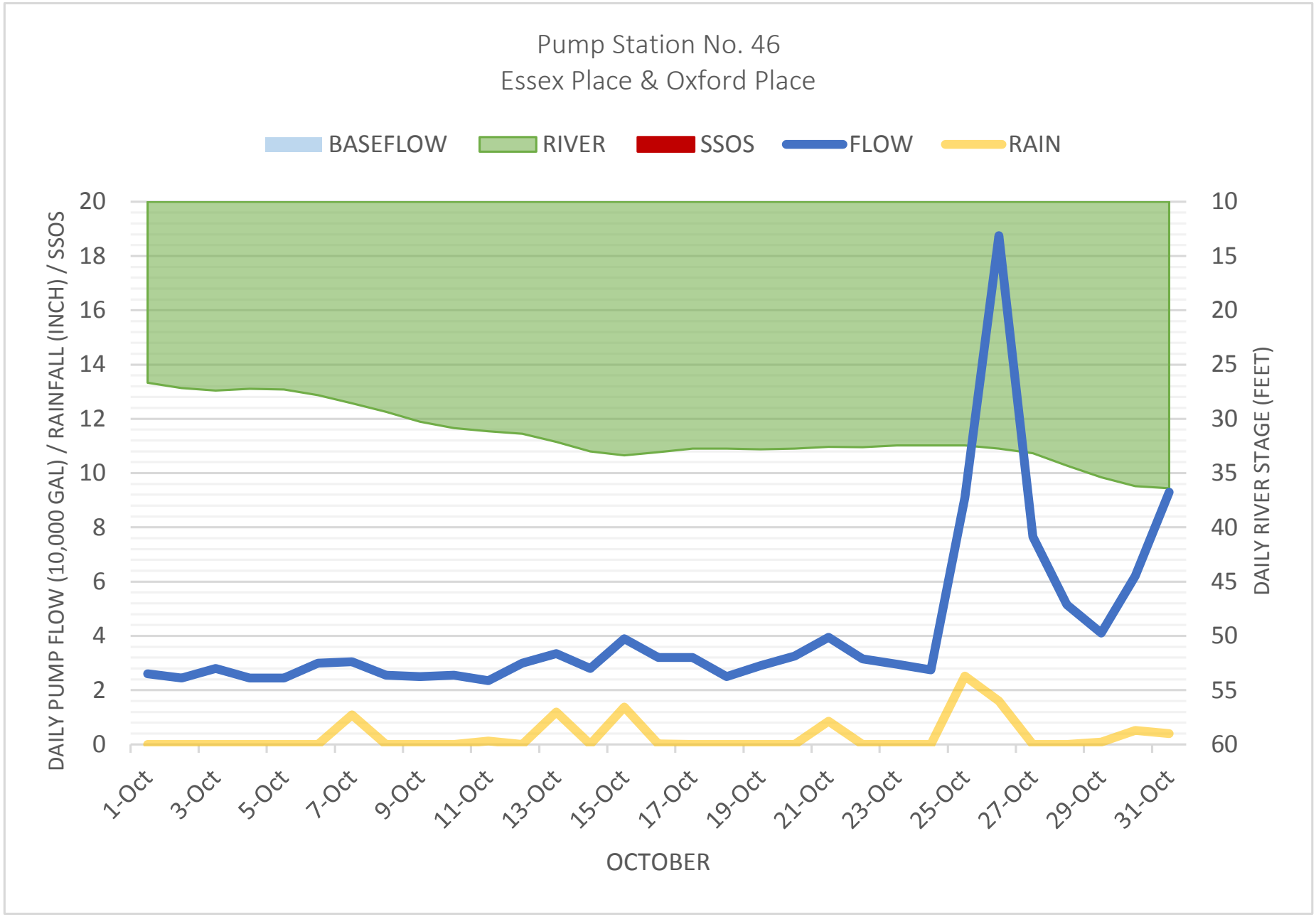
29-Sep
SEPTEMBER


Pump Station No. 46
Essex Place & Oxford Place
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
20
18
16
14
12
10
8
6
4
2
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10
15
20
25
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35
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55
60
1-Oct
3-Oct
5-Oct
7-Oct
9-Oct
11-Oct
13-Oct
15-Oct
17-Oct
19-Oct
21-Oct
23-Oct
25-Oct
27-Oct
29-Oct
31-Oct
OCTOBER

APPENDIX 41

MS28-B/PS70 I/I WORKSHEET

MS28-B/PS70
INFLOW & INFILTRATION WORKSHEET

Infiltration

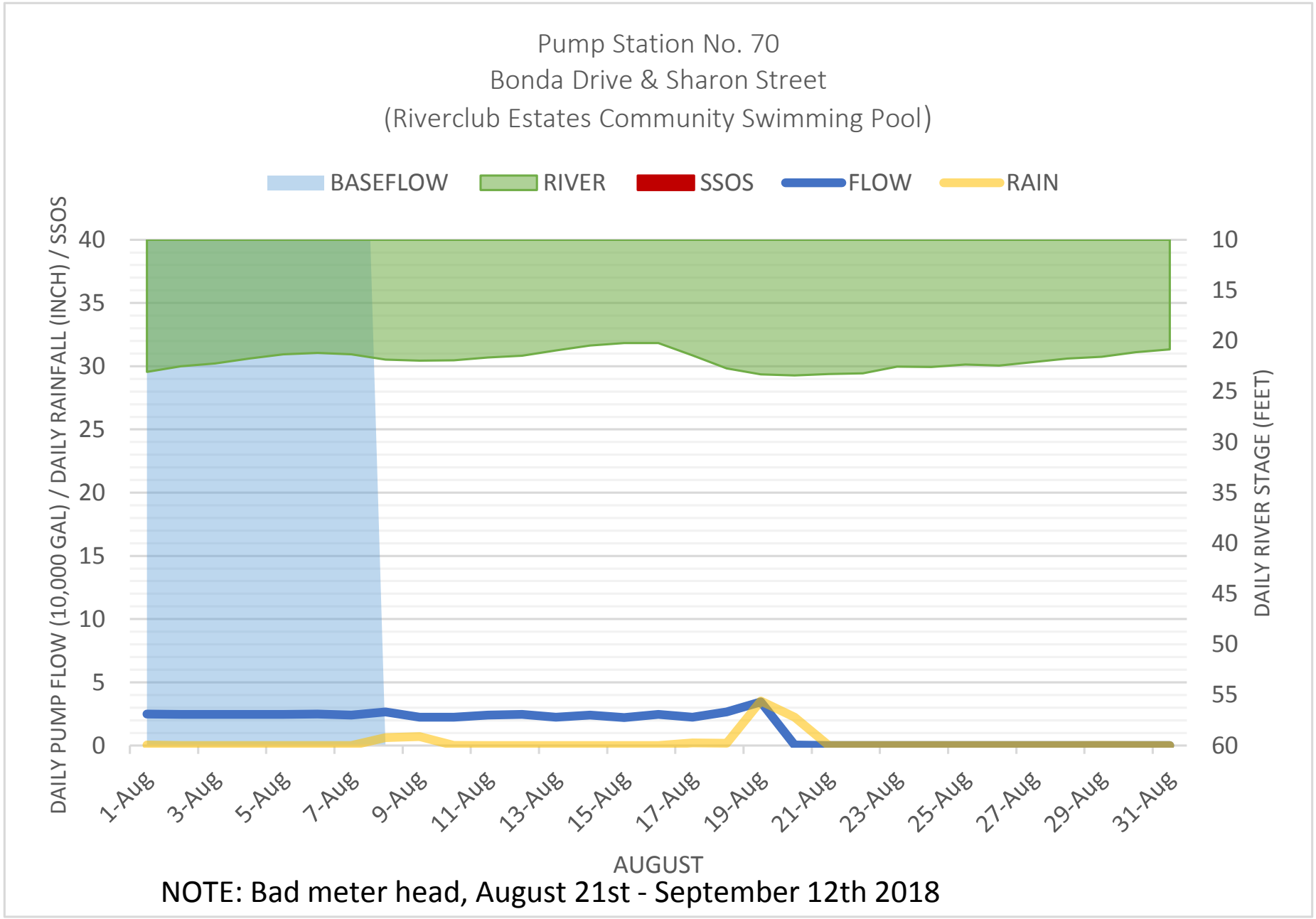
	feet	miles	diameter	inch-miles	
10" Gravity	1140	0.215909091	10.00	2.159091	
8" Gravity	7507	1.42	8	11.37424	
laterals	10200	1.93	4	7.727273	
				19.10152	**total inch-miles in system**
		maximum average infiltration	inch-miles		
		15,214.2857	19.10	**796.4963**	**total gpd/idm**

Inflow

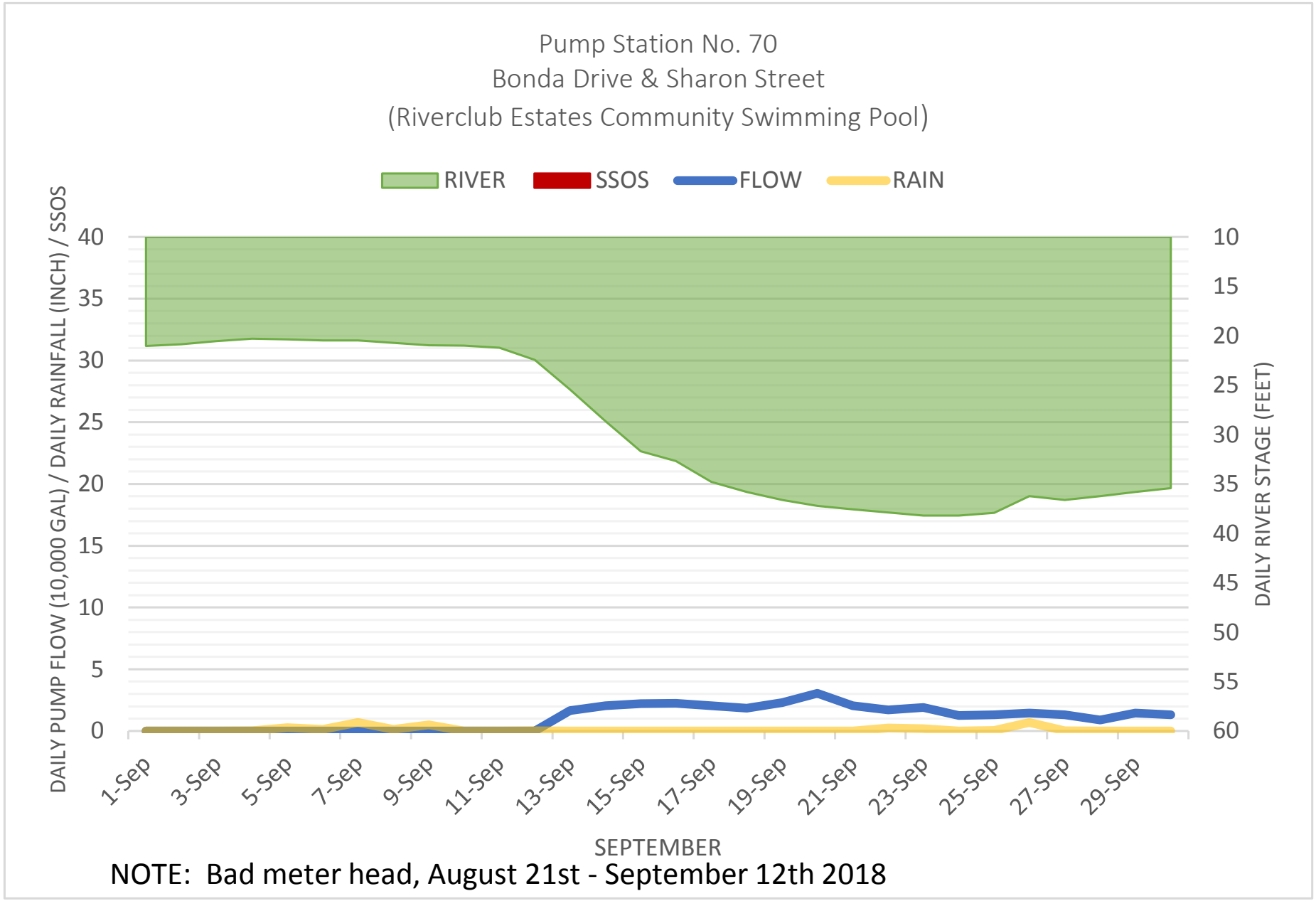
	feet	miles	diameter	inch-miles	
10" Gravity	1140	0.22	10.00	2.159091	
8" Gravity	7507	1.42	8.00	11.37424	
laterals	10200	1.93	4.00	7.727273	
TOTAL	17707				
				19.10152	**total inch-miles in system**
		maximum average inflow	inch-miles		
		140,714.2857	19.10	**7366.656**	**total gpd/idm**

APPENDIX 42

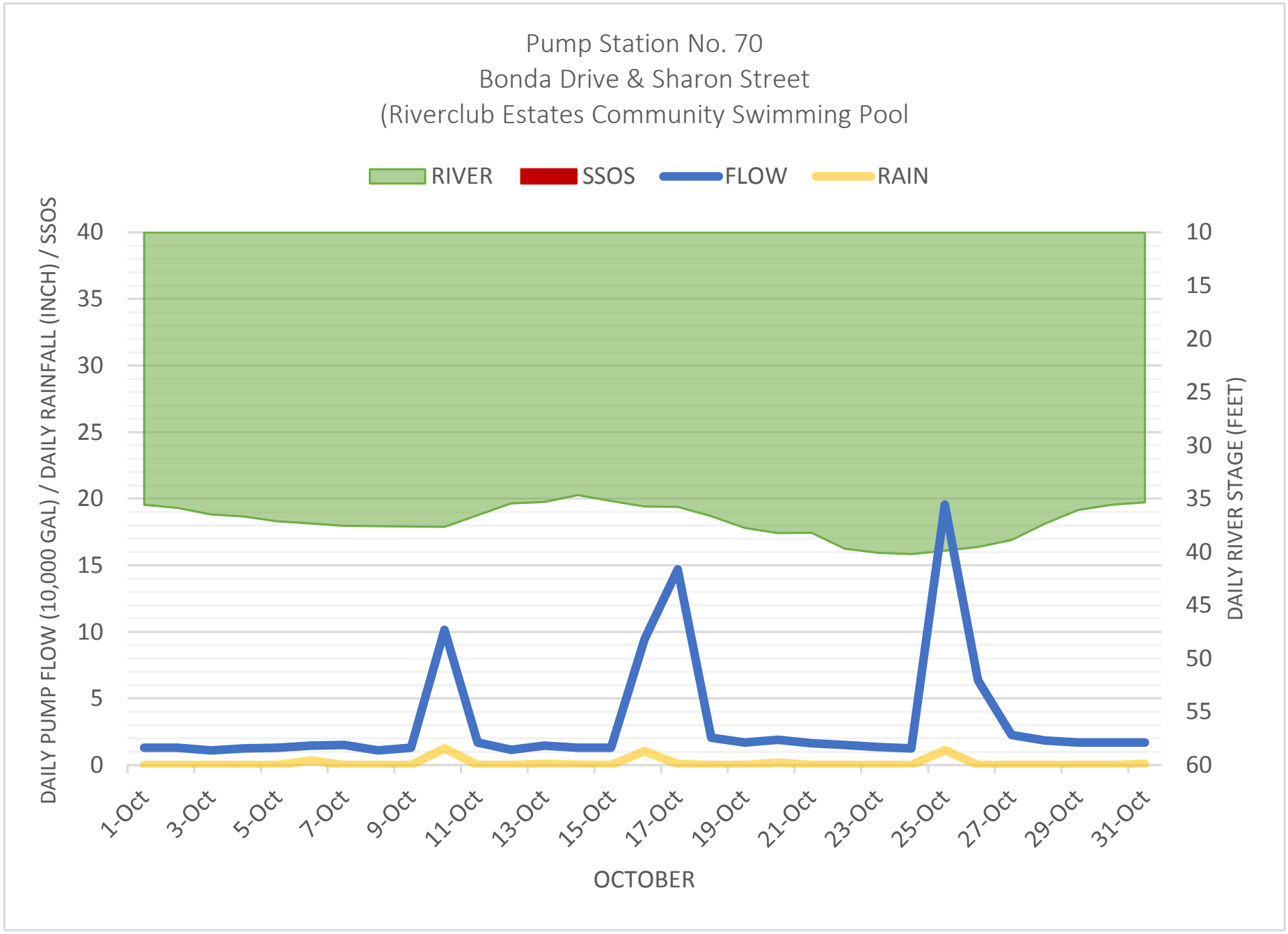
MS28-B/PS70 GRAPHS



NOTE: Bad meter head, August 21st - September 12th 2018



NOTE: Bad meter head, August 21st - September 12th 2018


Pump Station No. 70
Bonda Drive & Sharon Street
(Riverclub Estates Community Swimming Pool
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Oct
3-Oct
5-Oct
7-Oct
9-Oct
11-Oct
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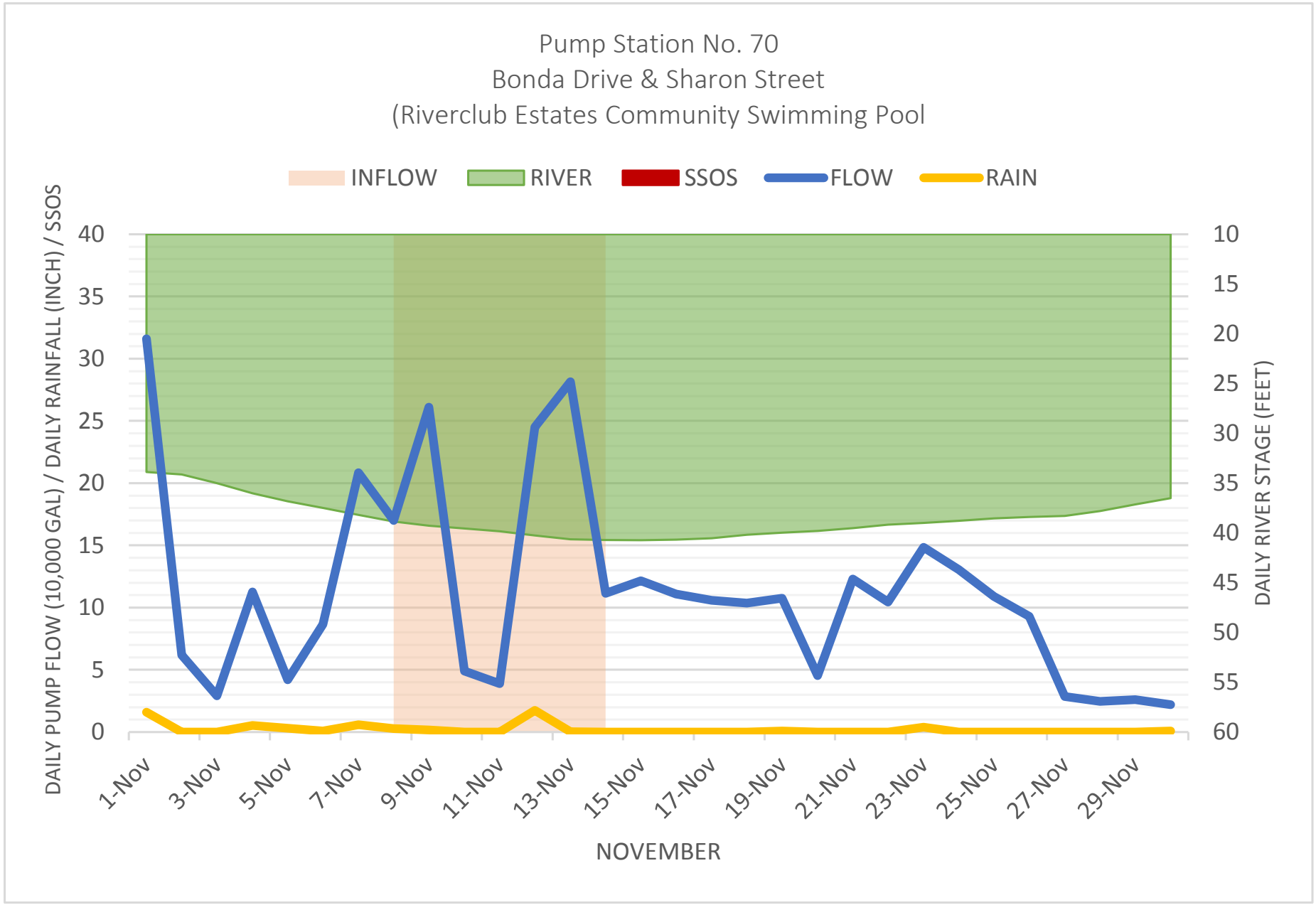
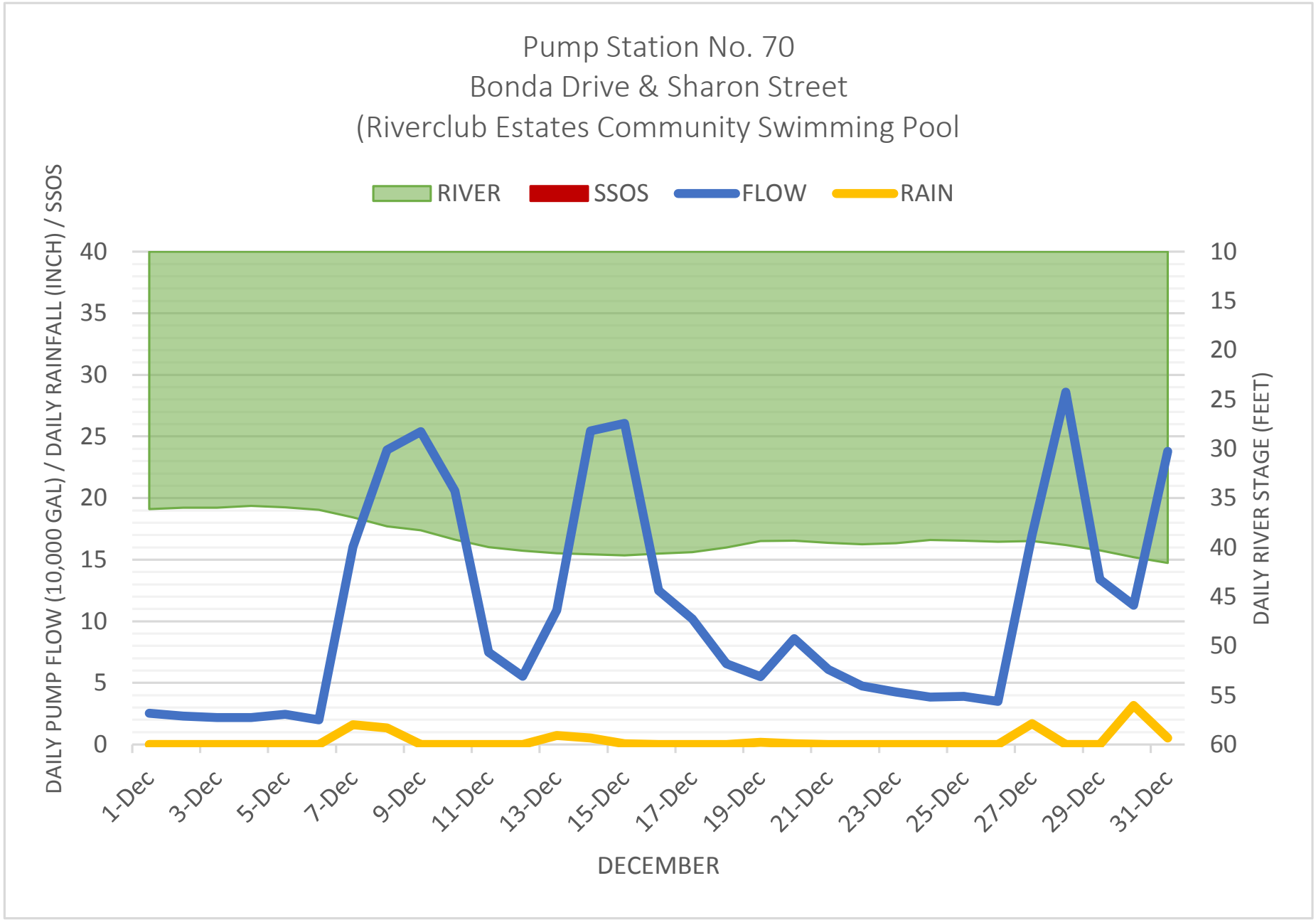
17-Oct
19-Oct
21-Oct
23-Oct
25-Oct
27-Oct
29-Oct
31-Oct
OCTOBER


Pump Station No. 70
Bonda Drive & Sharon Street
(Riverclub Estates Community Swimming Pool
INFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Nov
3-Nov
5-Nov
7-Nov
9-Nov
11-Nov
13-Nov
15-Nov
17-Nov
19-Nov
21-Nov
23-Nov
25-Nov
27-Nov
29-Nov
NOVEMBER


Pump Station No. 70
Bonda Drive & Sharon Street
(Riverclub Estates Community Swimming Pool
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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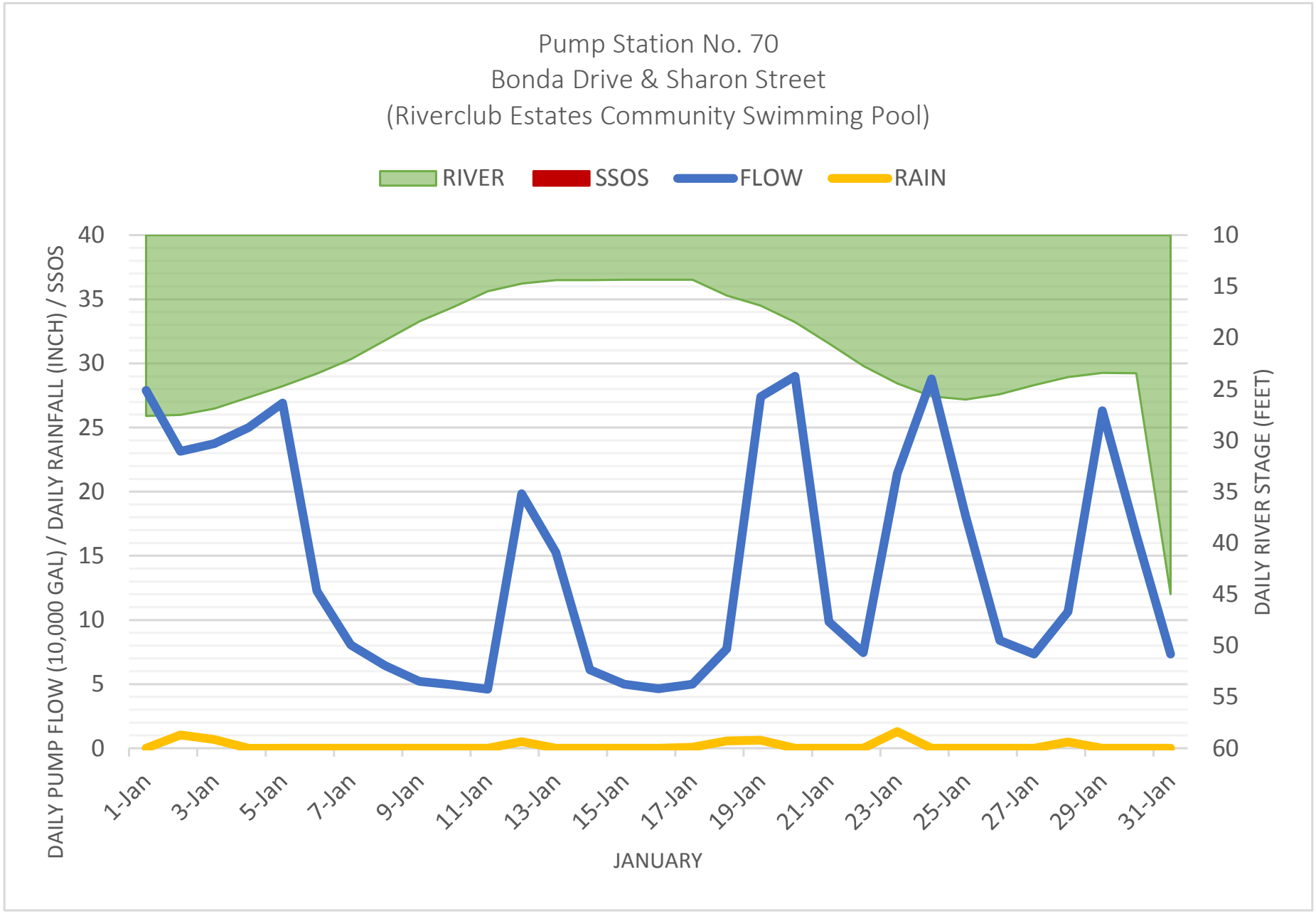
31-Dec
DECEMBER


Pump Station No. 70
Bonda Drive & Sharon Street
(Riverclub Estates Community Swimming Pool)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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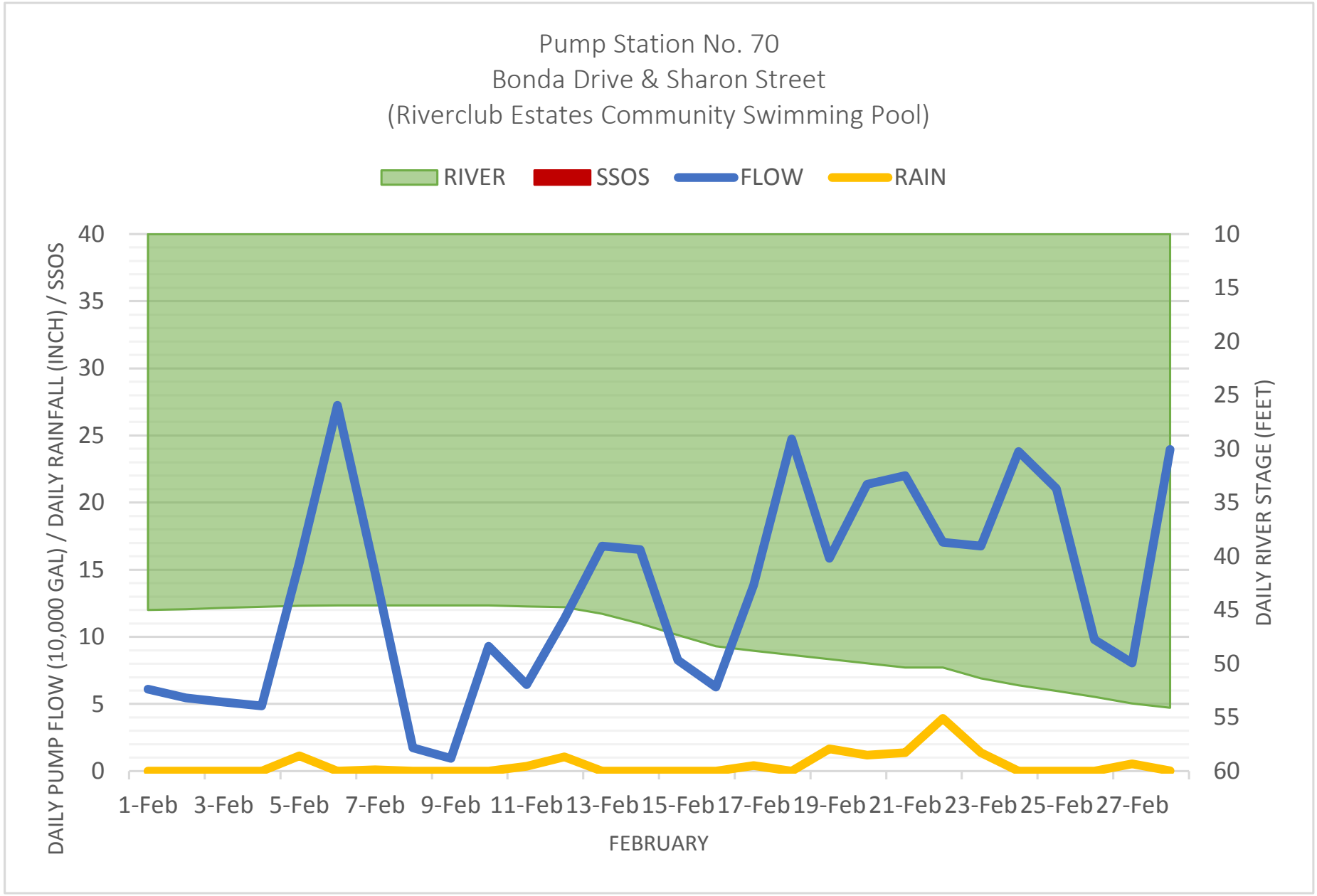
31-Jan
JANUARY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Bonda Drive & Sharon Street
(Riverclub Estates Community Swimming Pool)
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SSOS
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RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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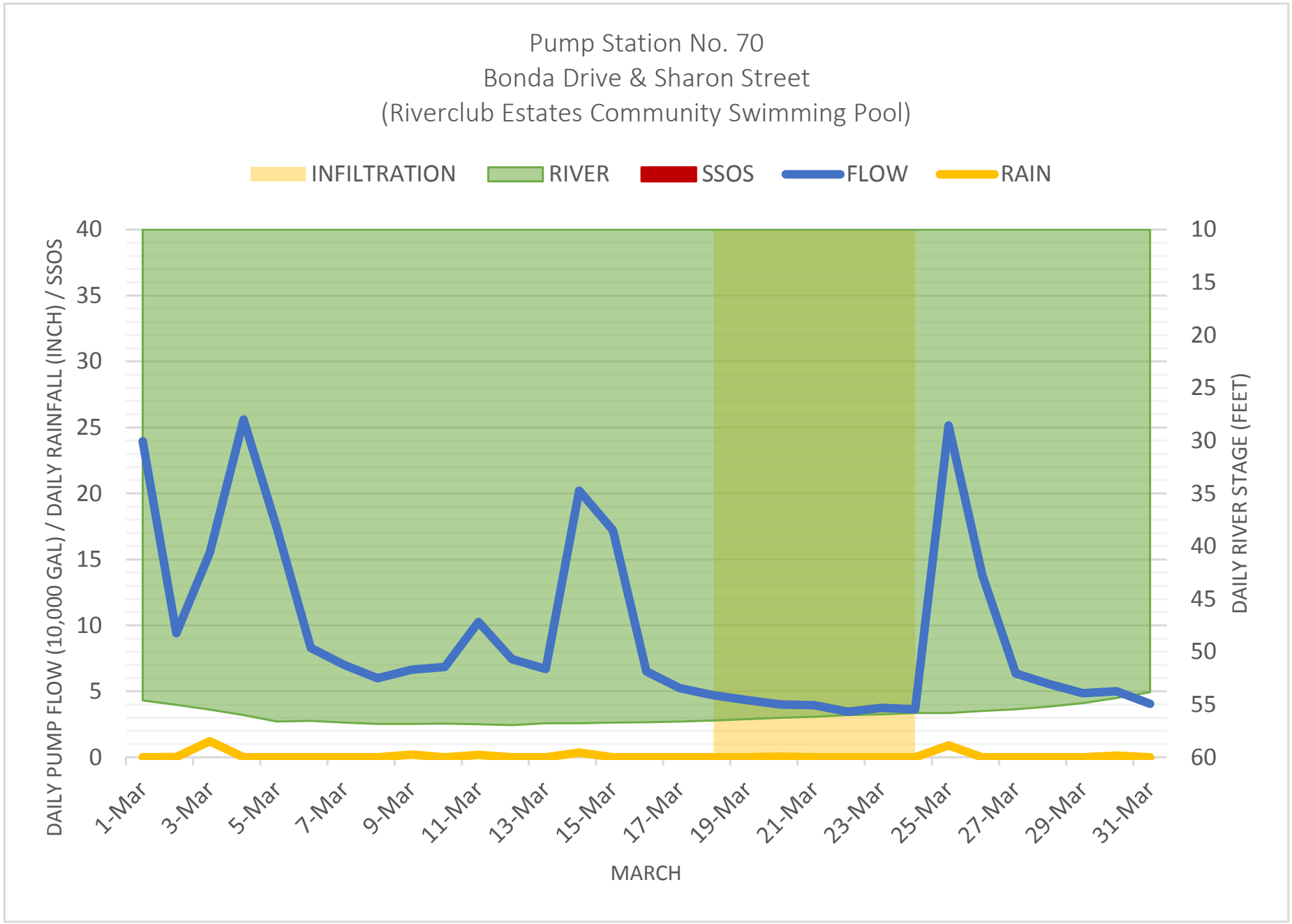
27-Feb
FEBRUARY


Pump Station No. 70
Bonda Drive & Sharon Street
(Riverclub Estates Community Swimming Pool)
INFILTRATION
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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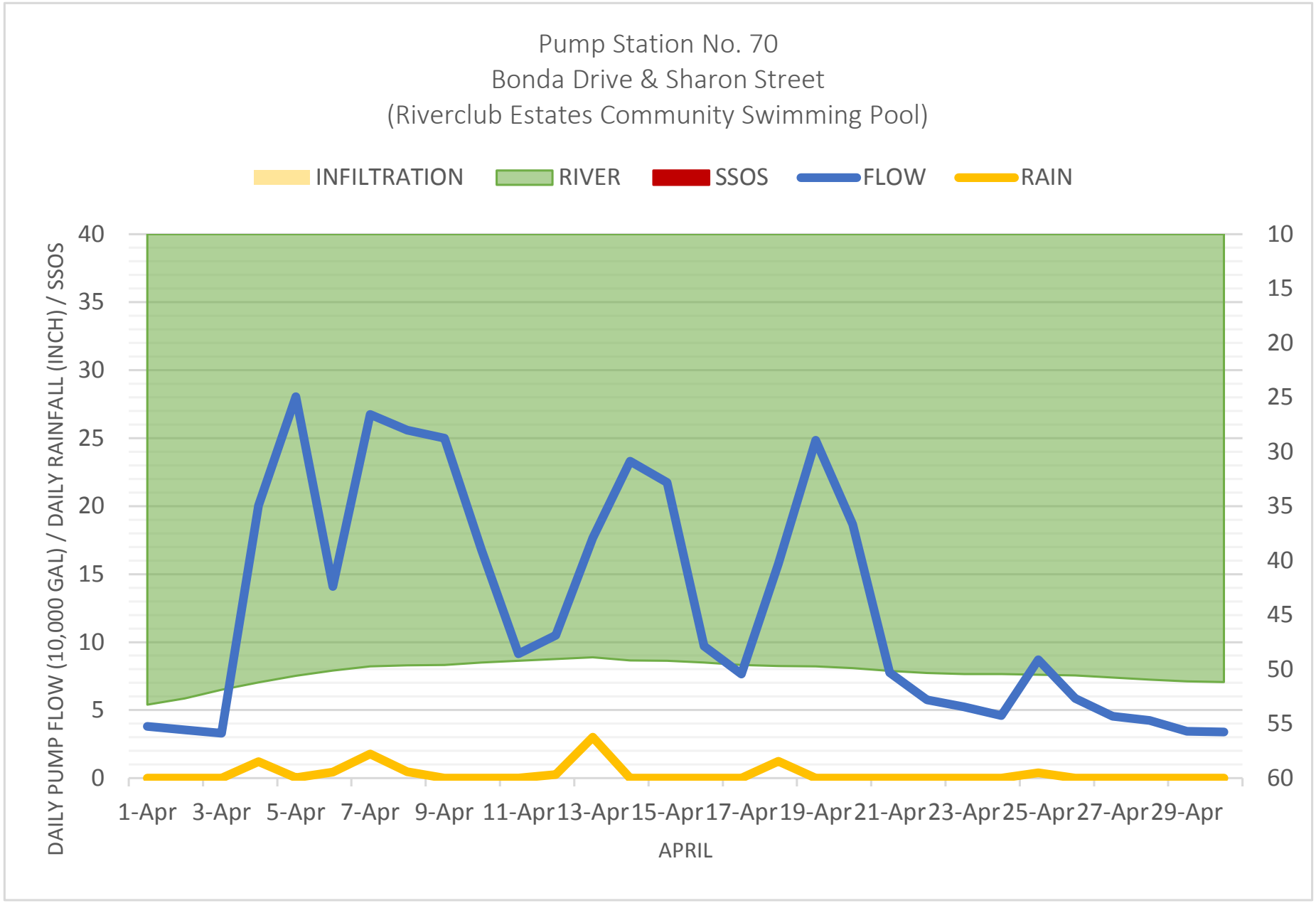
MARCH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Bonda Drive & Sharon Street
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INFILTRATION
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
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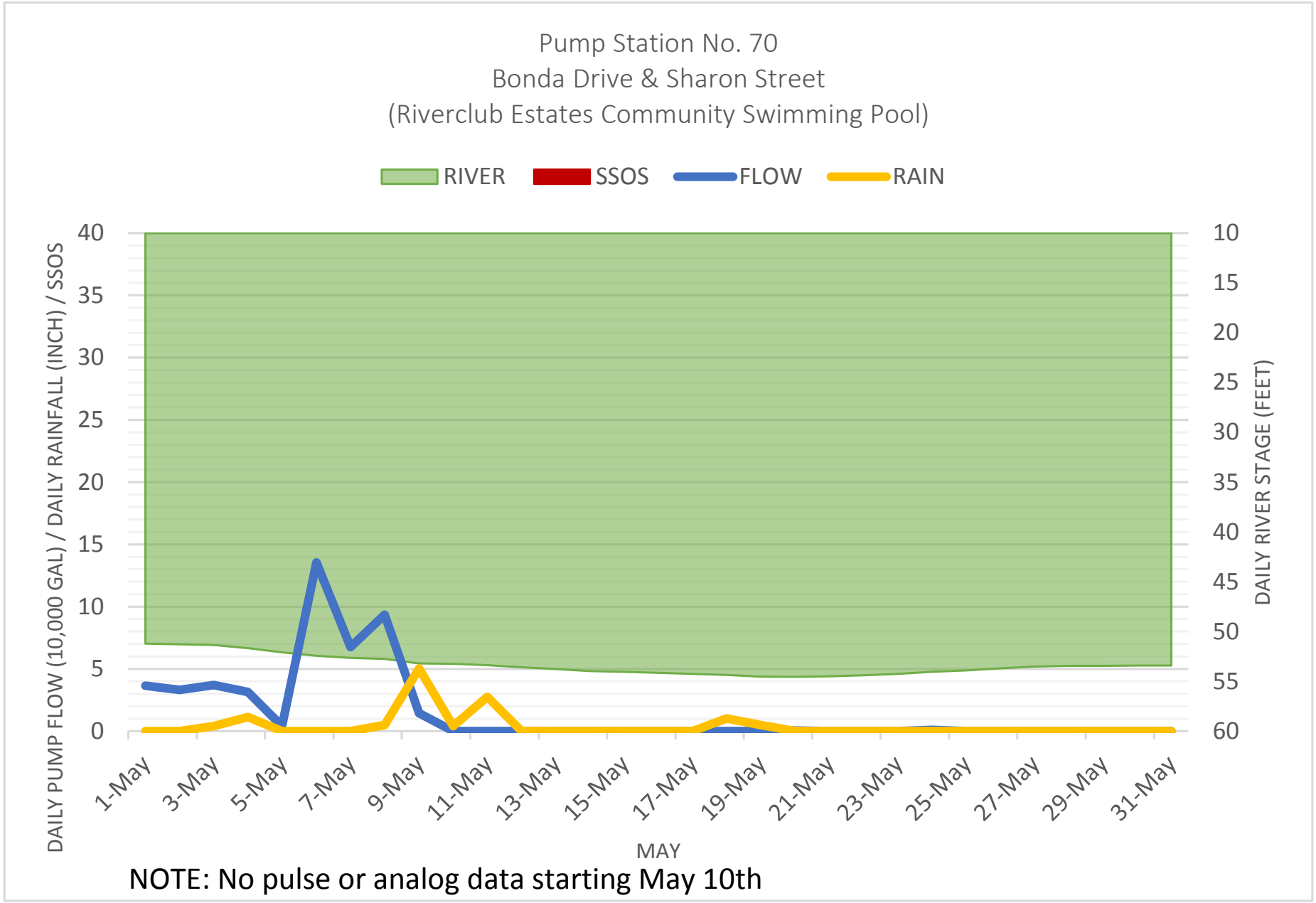
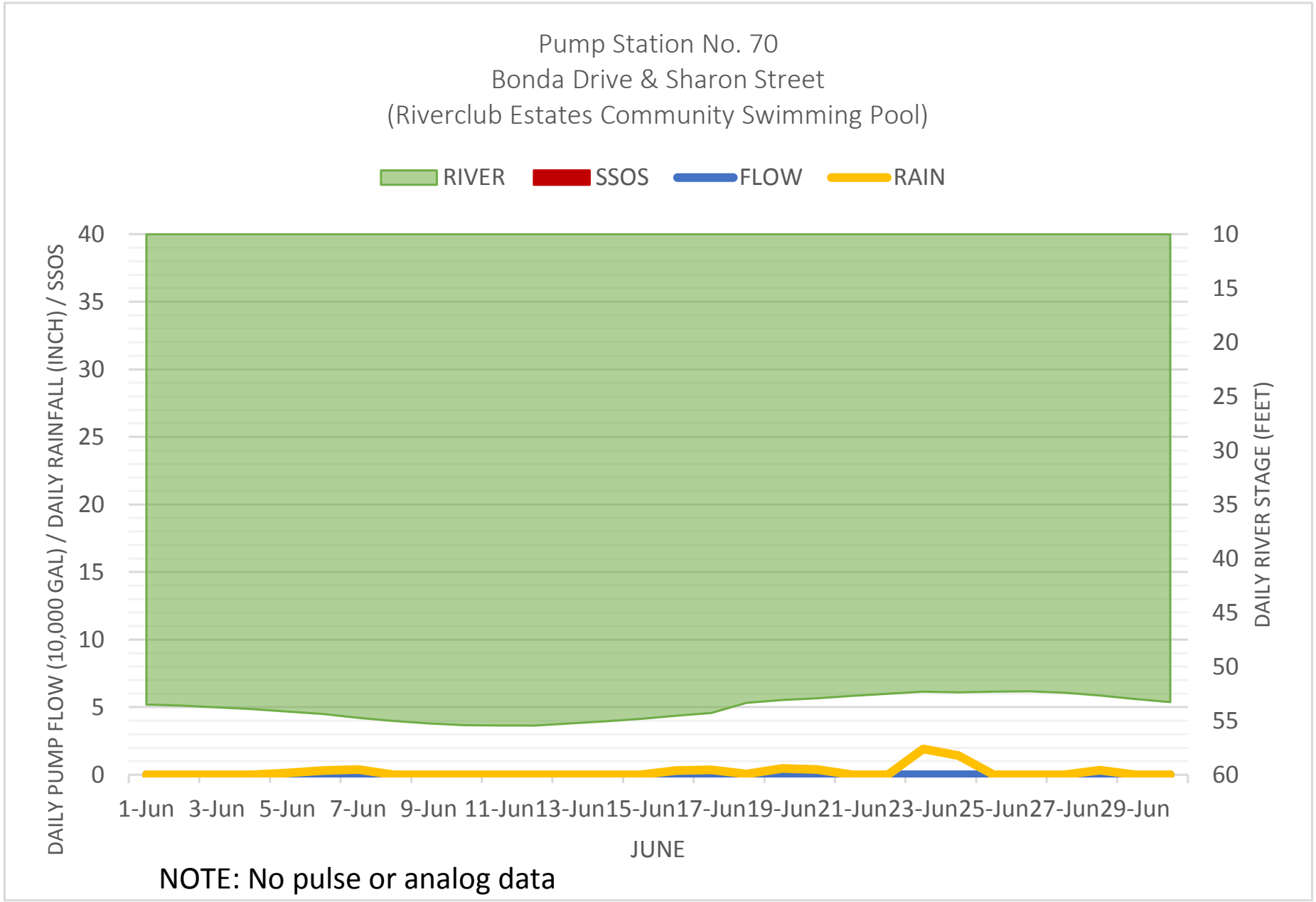
APRIL

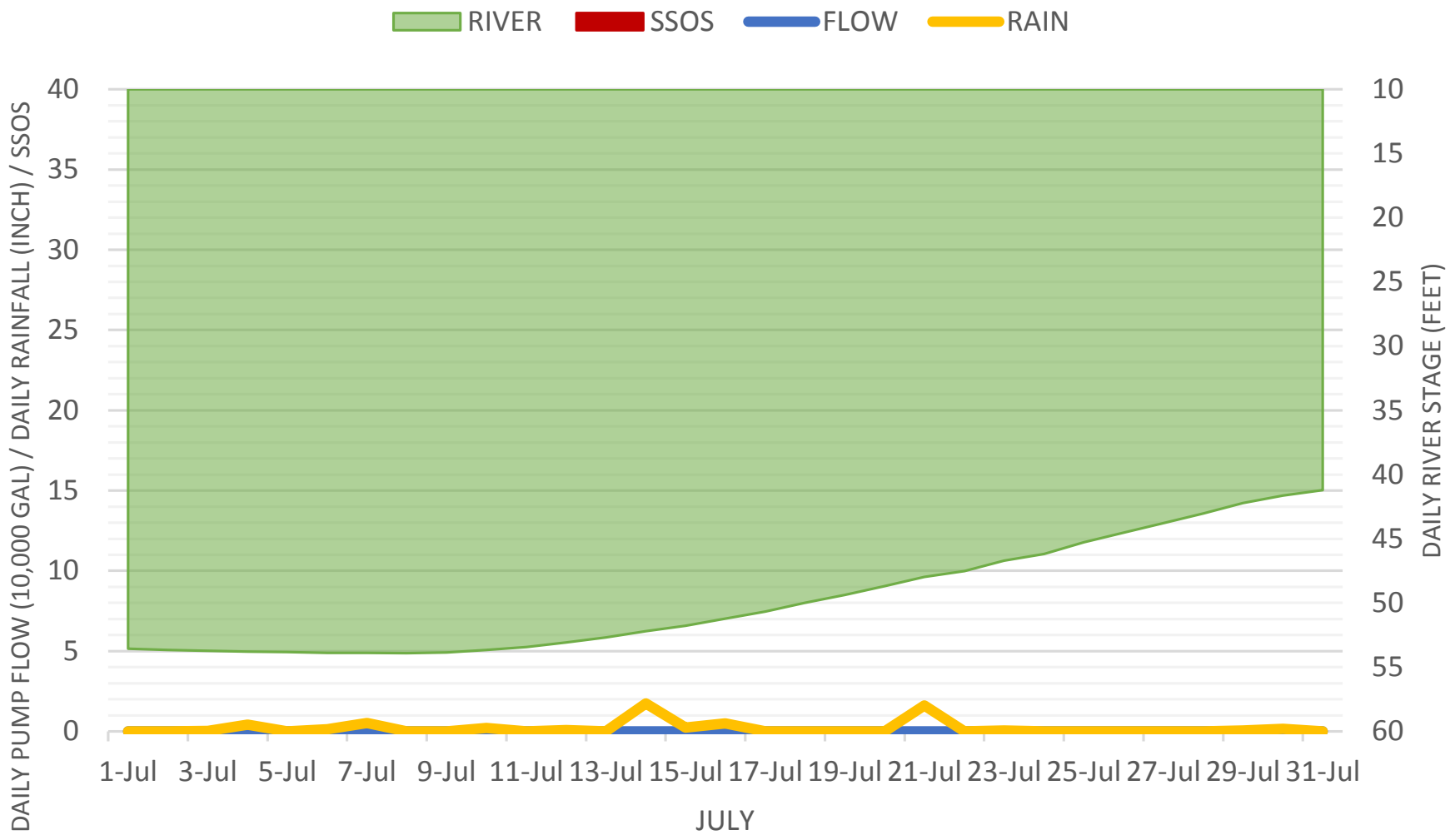


NOTE: No pulse or analog data starting May 10th



NOTE: No pulse or analog data

Pump Station No. 70
Bonda Drive & Sharon Street
(Riverclub Estates Community Swimming Pool)



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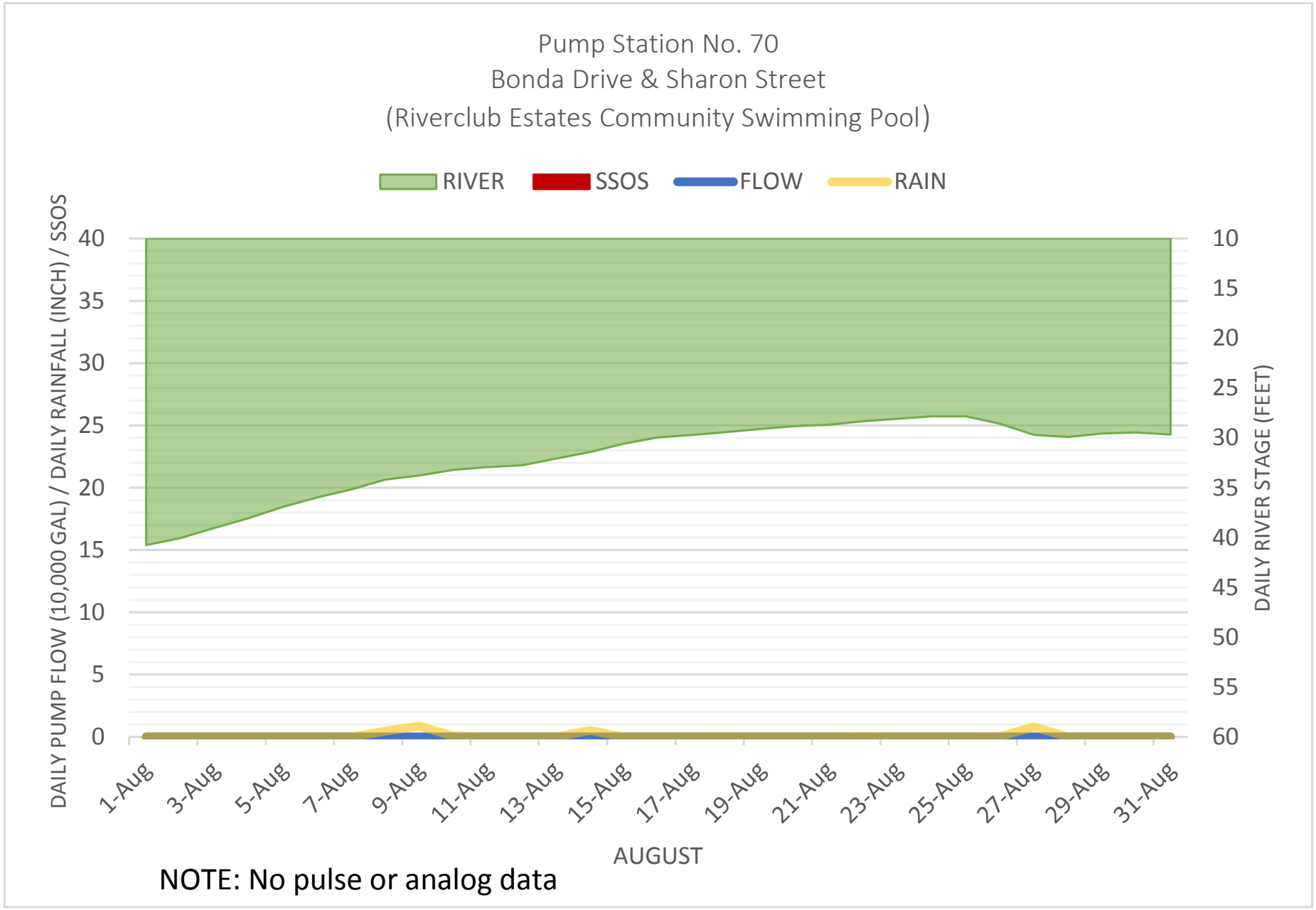

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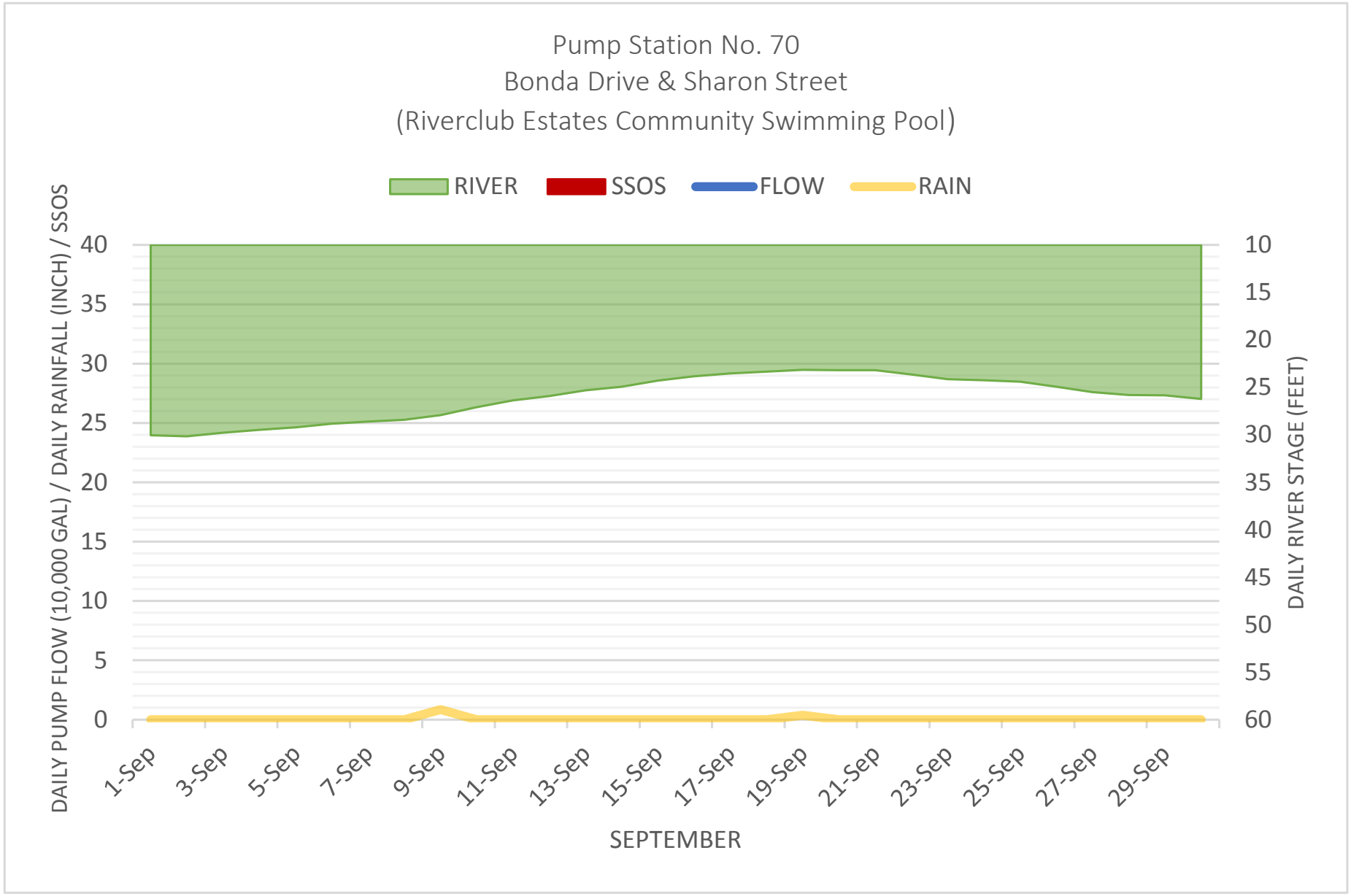
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Bonda Drive & Sharon Street
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DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
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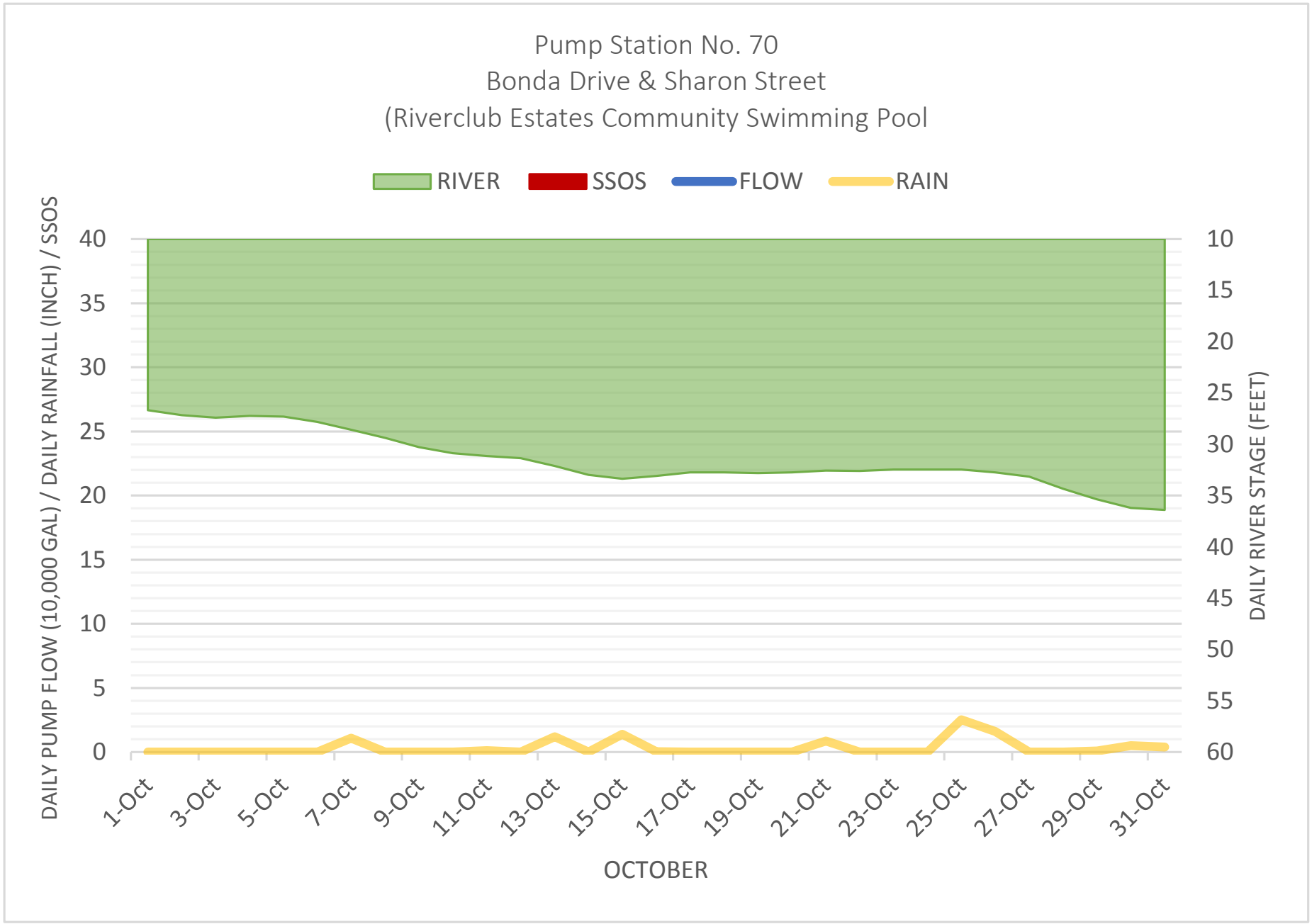
SEPTEMBER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29-Oct
31-Oct
OCTOBER

APPENDIX 43

MS28-C/PS100 I/I WORKSHEET

MS28-C/PS100
INFLOW & INFILTRATION WORKSHEET

Infiltration

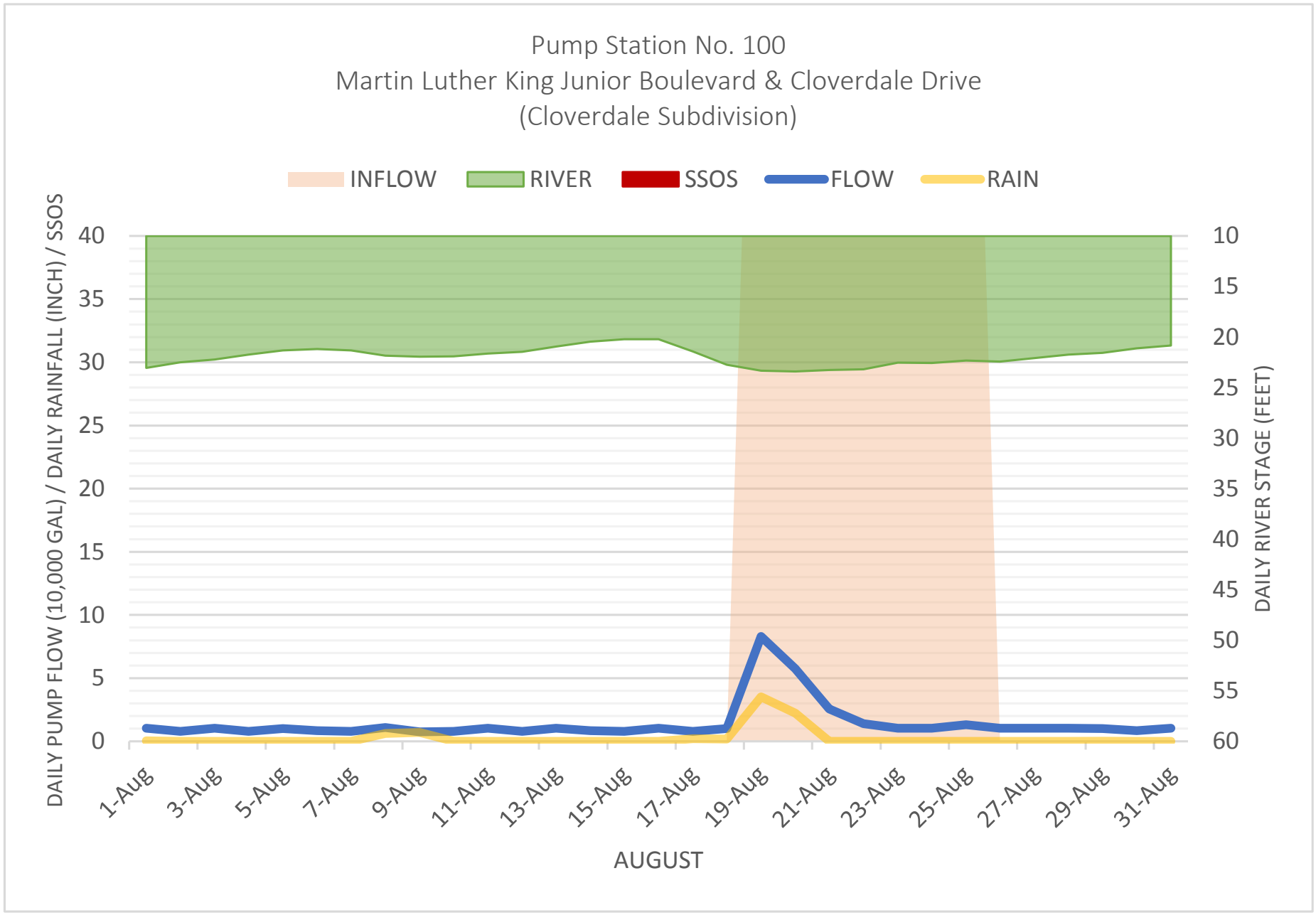
	feet	miles	diameter	inch-miles	
8" Gravity	4917	0.93	8	7.45	
laterals	8520	1.61	4	6.454545	
				13.90455	**total inch-miles in system**
		maximum average infiltration	inch-miles		
		16,571.4286	13.90	**1191.799**	**total gpd/idm**

Inflow

	feet	miles	diameter	inch-miles	
8" Gravity	4917	0.93	8.00	7.45	
laterals	8520	1.61	4.00	6.454545	
TOTAL PIPE	13437				
				13.90455	**total inch-miles in system**
		maximum average inflow	inch-miles		
		59,000.0000	13.90	**4243.217**	**total gpd/idm**

APPENDIX 44

MS28-C/PS100 GRAPHS


Pump Station No. 100
Martin Luther King Junior Boulevard & Cloverdale Drive
(Cloverdale Subdivision)
INFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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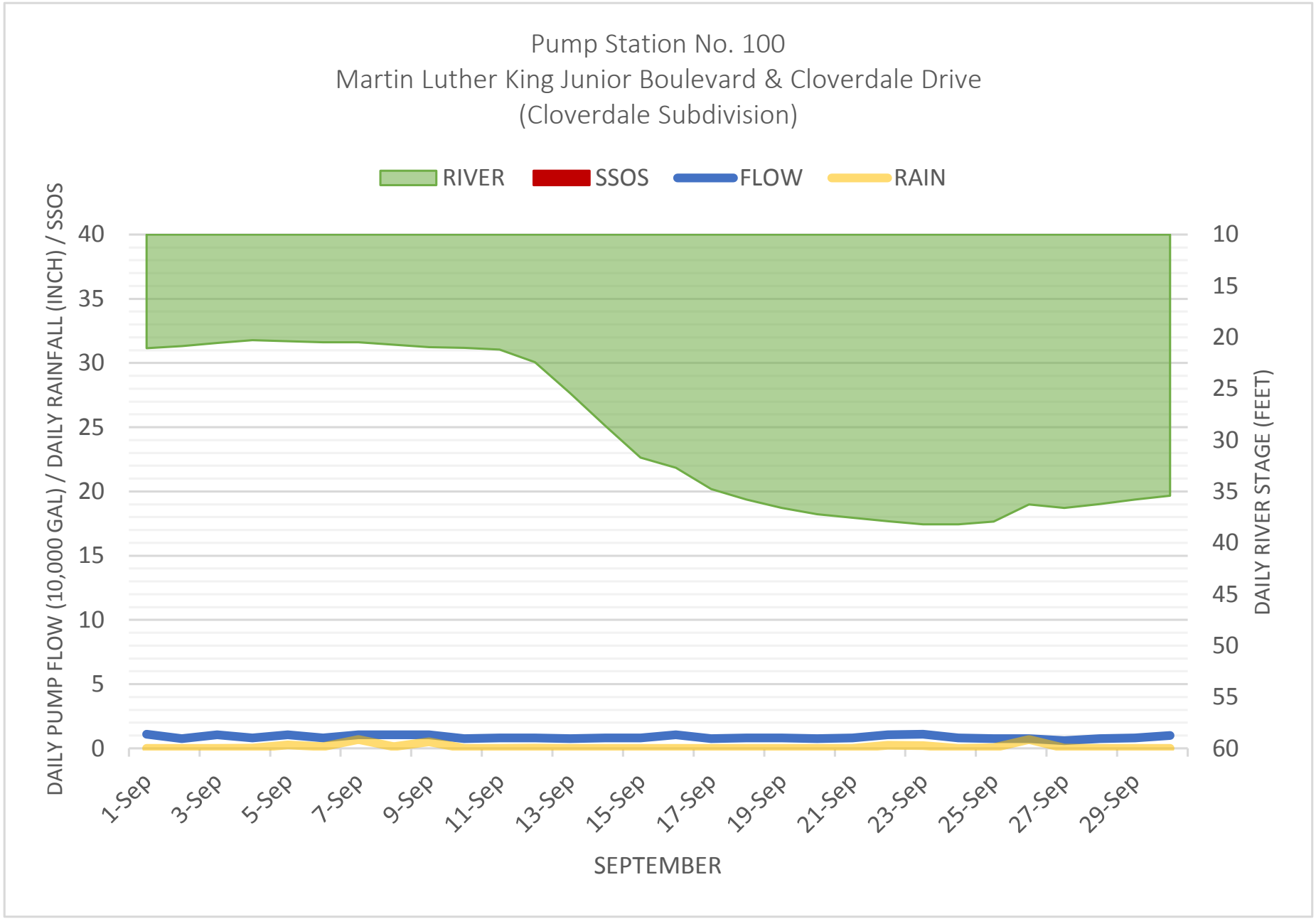
AUGUST


Pump Station No. 100
Martin Luther King Junior Boulevard & Cloverdale Drive
(Cloverdale Subdivision)
RIVER
SSOS
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RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
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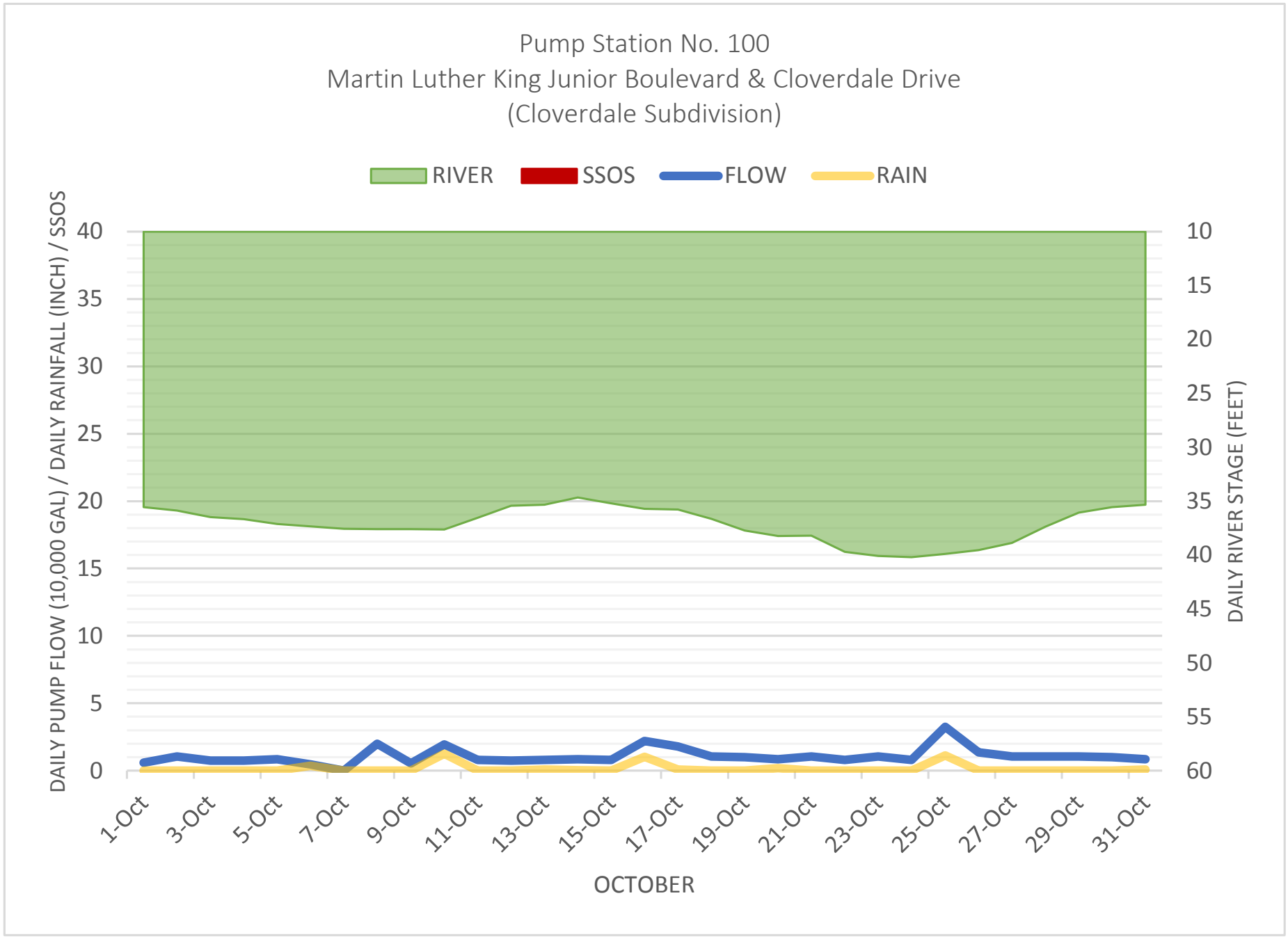
SEPTEMBER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DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
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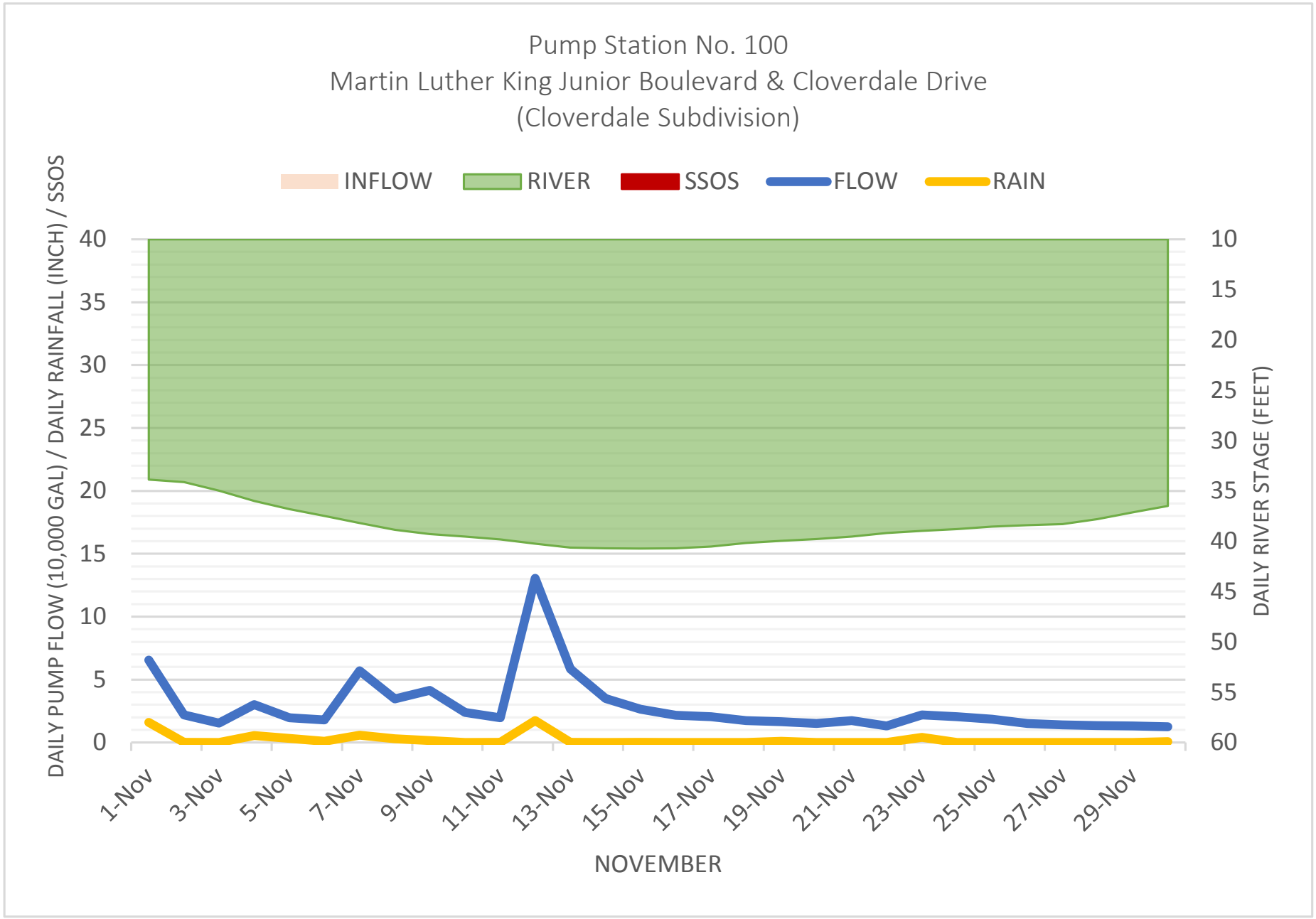
OCTOBER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Martin Luther King Junior Boulevard & Cloverdale Drive
(Cloverdale Subdivision)
INFLOW
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DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
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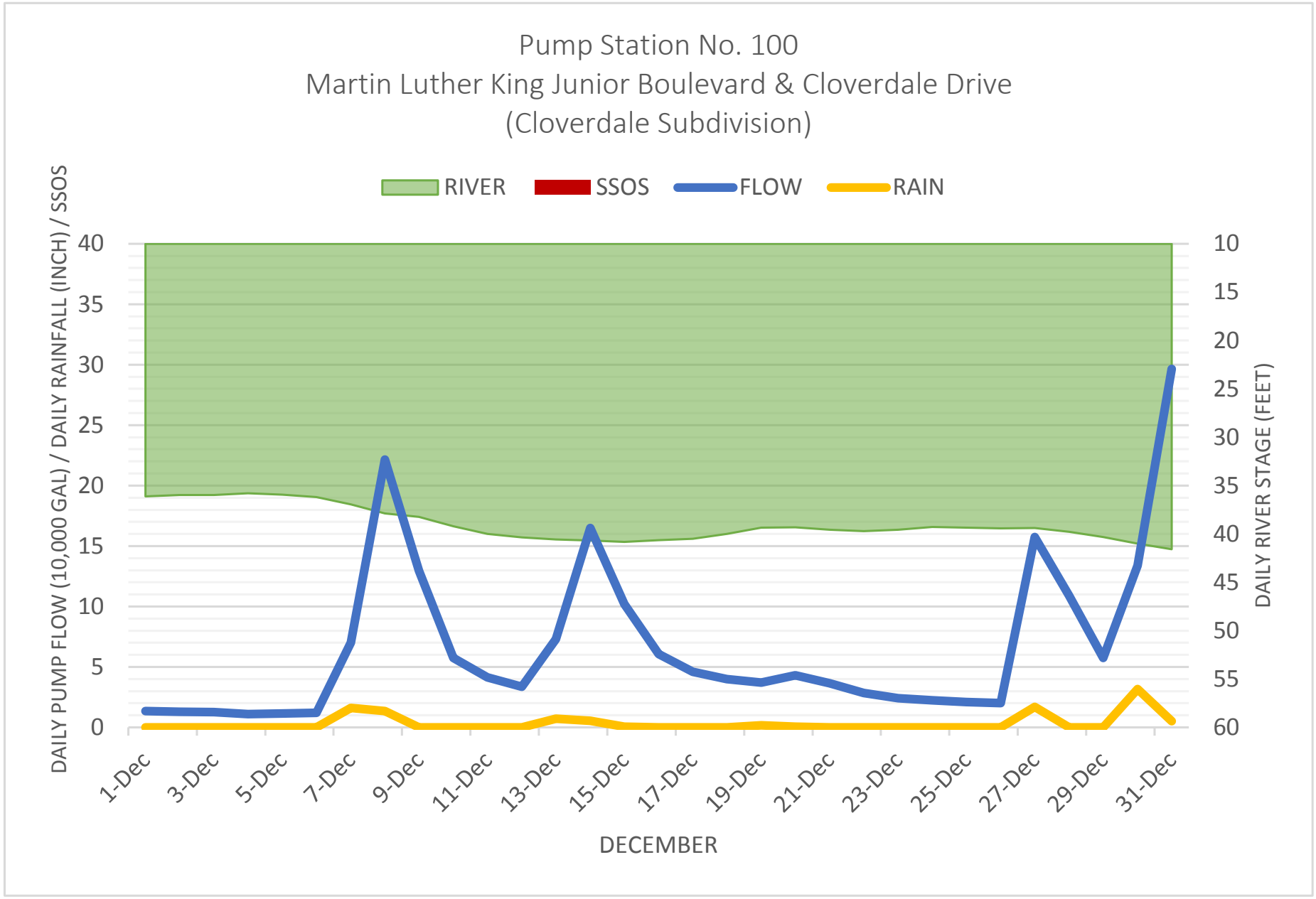
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Martin Luther King Junior Boulevard & Cloverdale Drive
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RIVER
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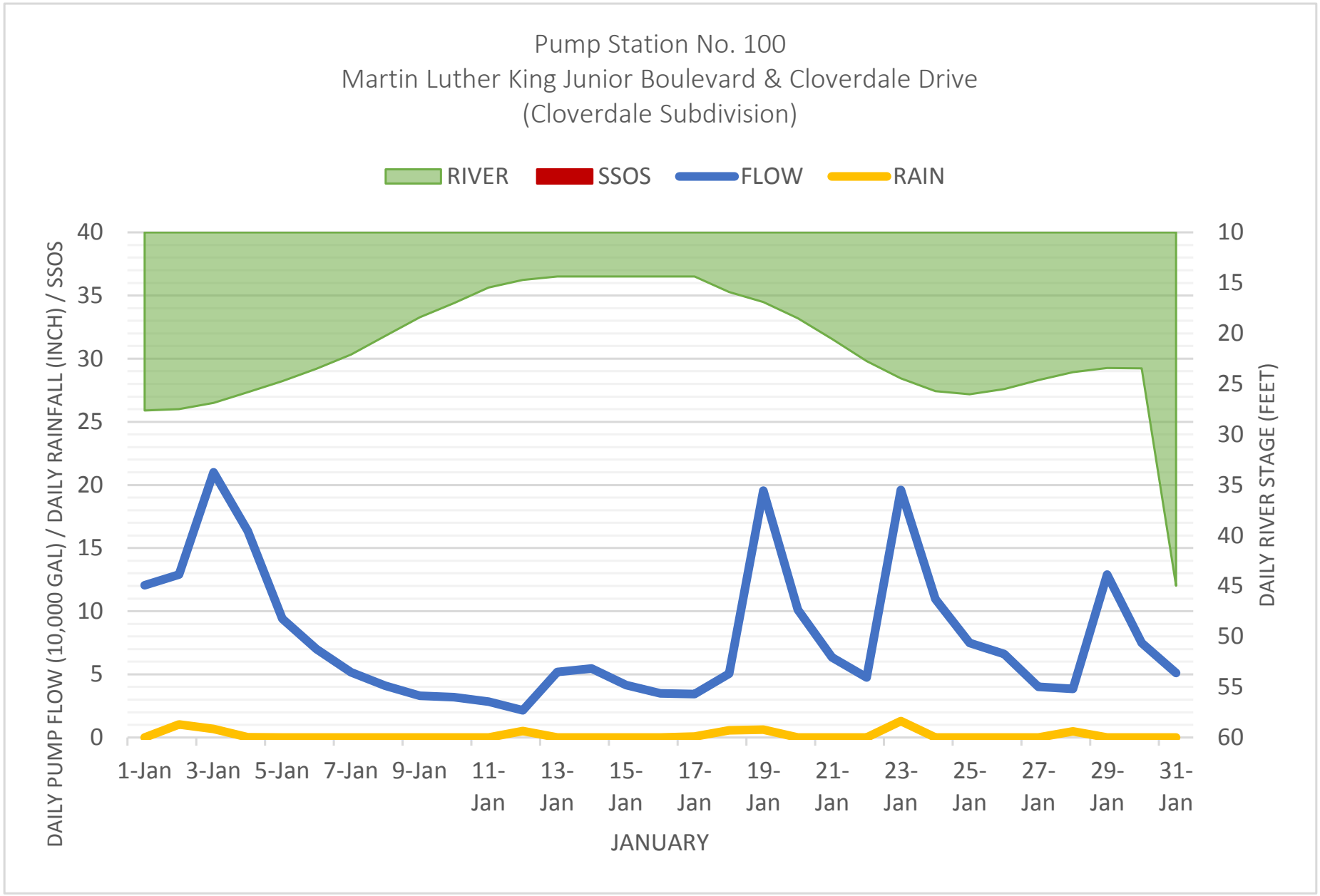
DECEMBER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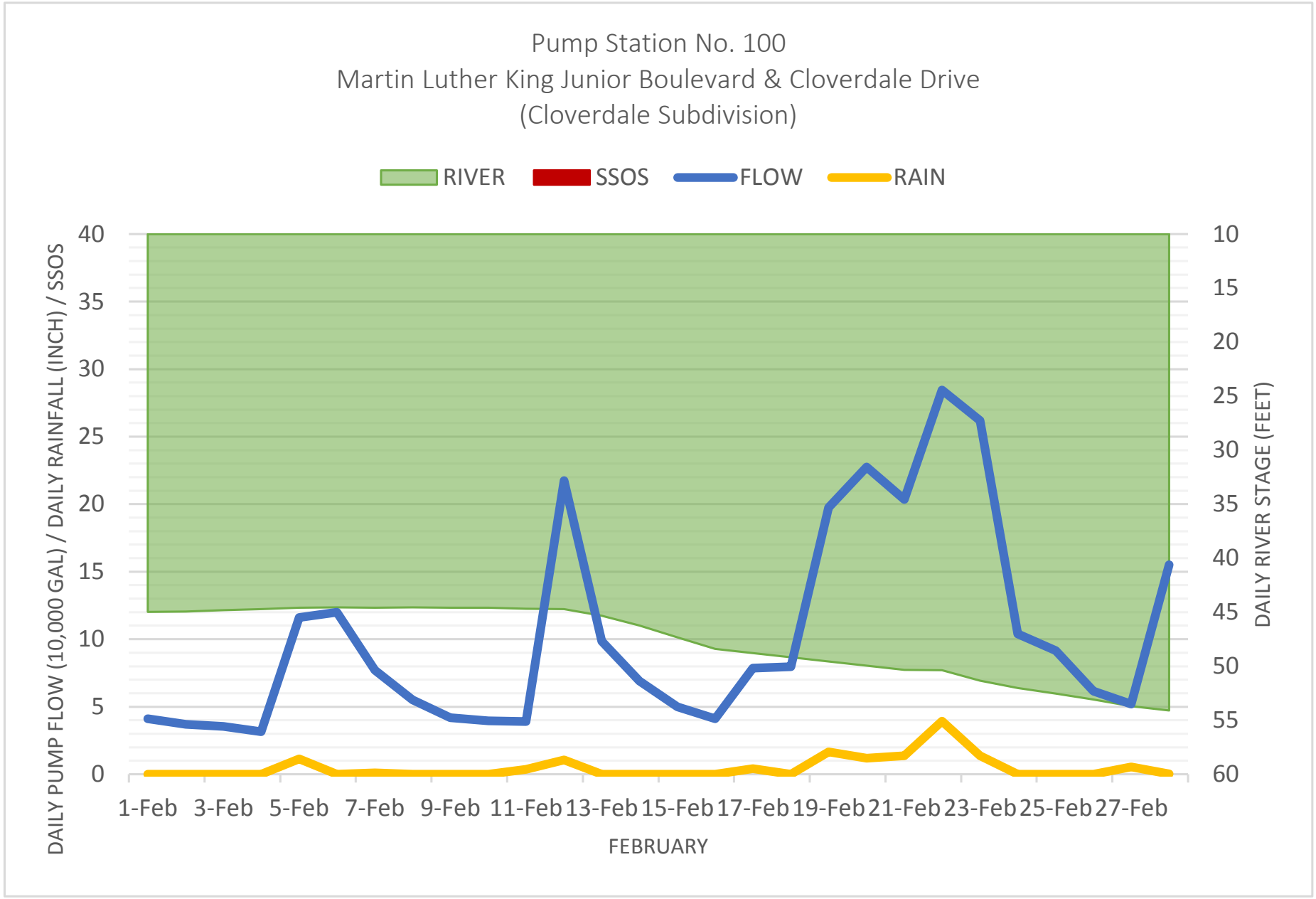
JANUARY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Martin Luther King Junior Boulevard & Cloverdale Drive
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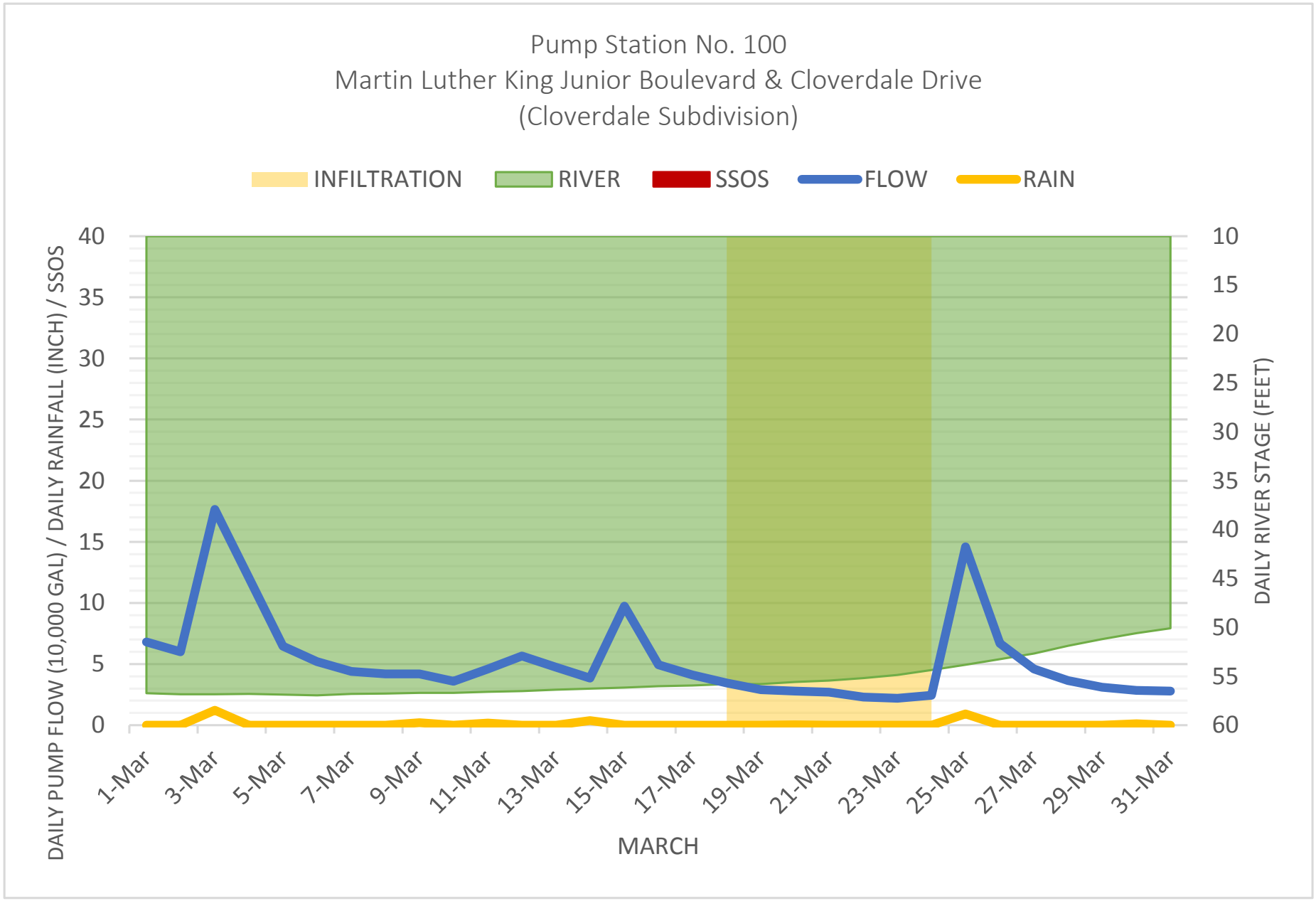
FEBRUARY


Pump Station No. 100
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INFILTRATION
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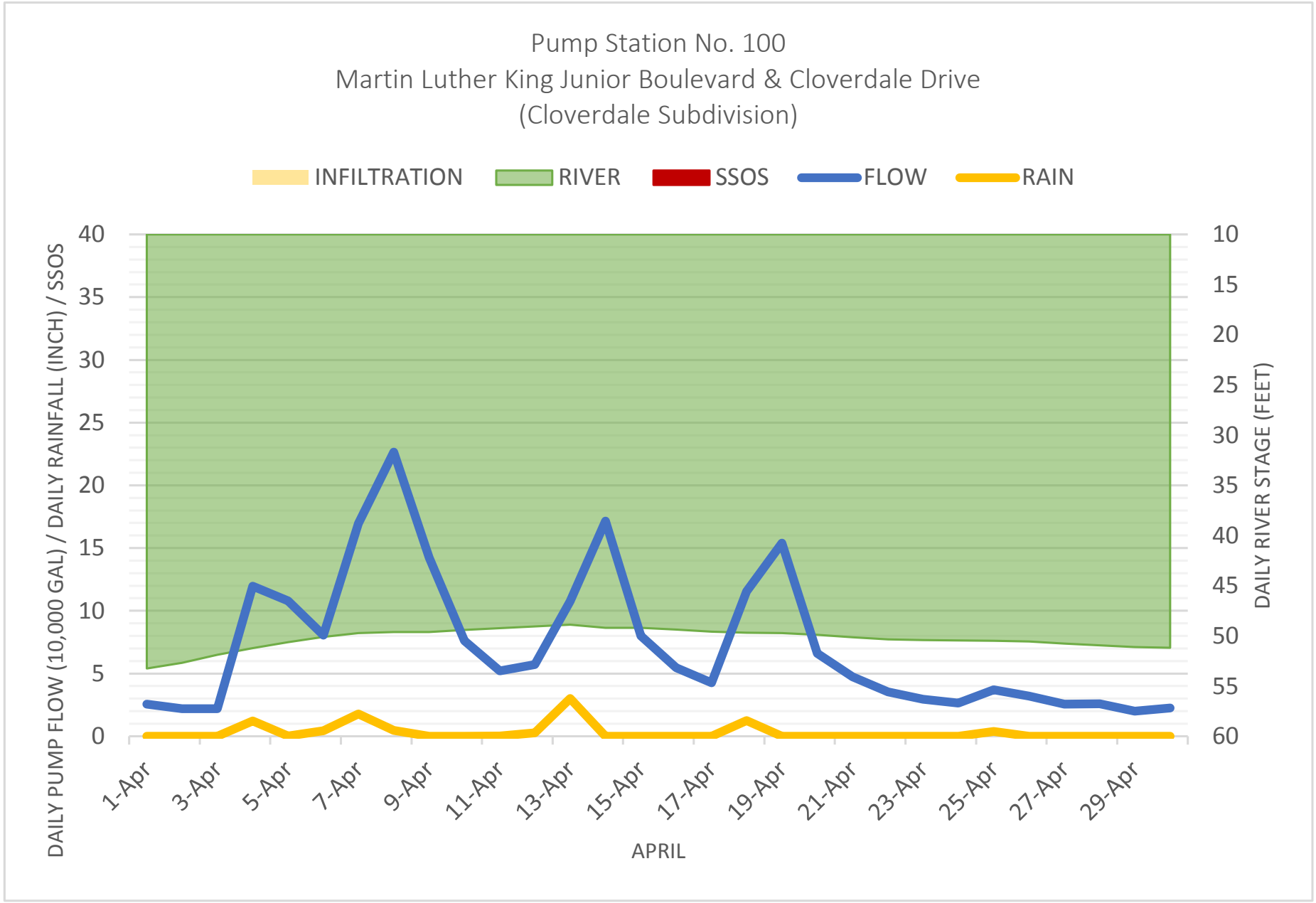
MARCH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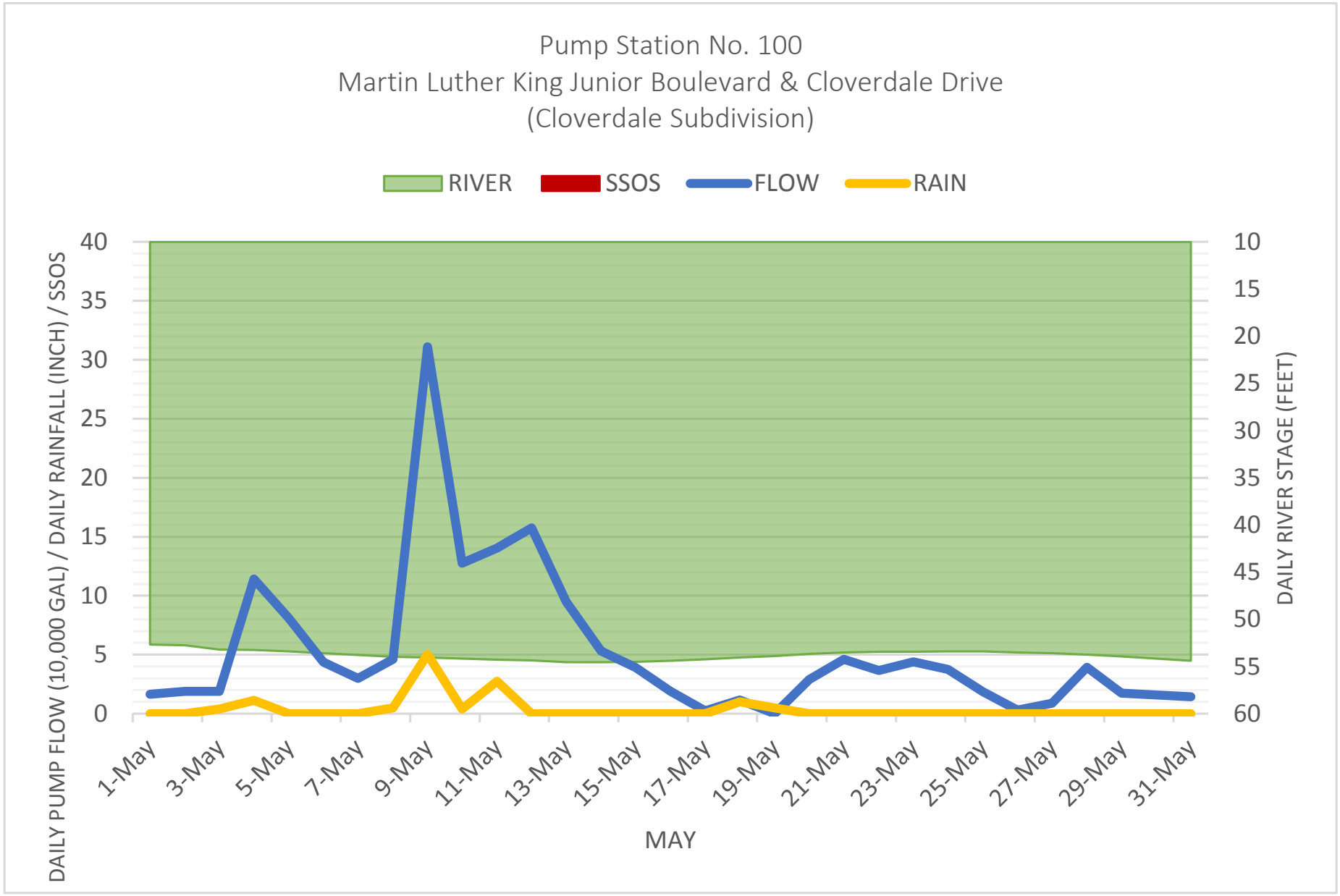
APRIL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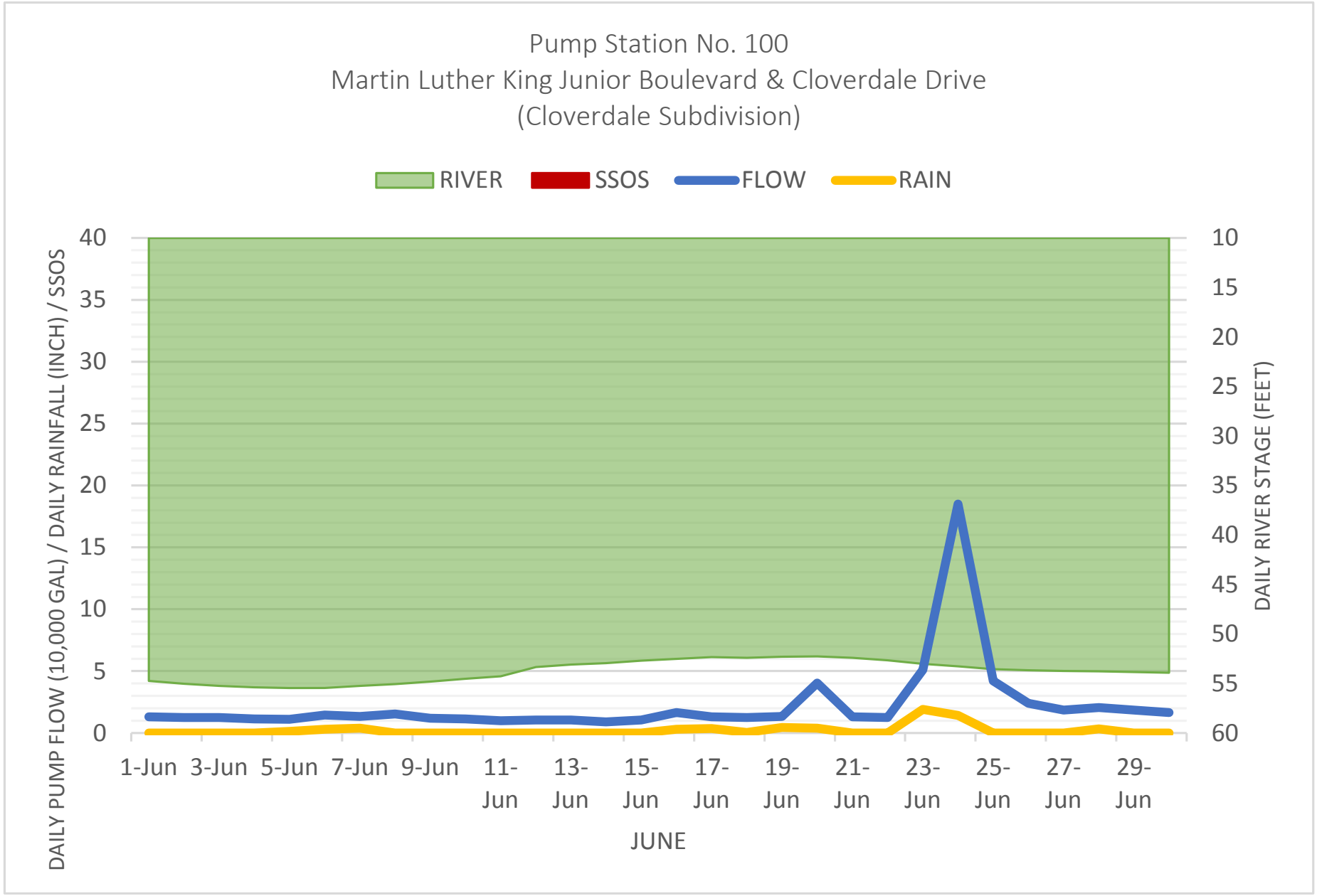
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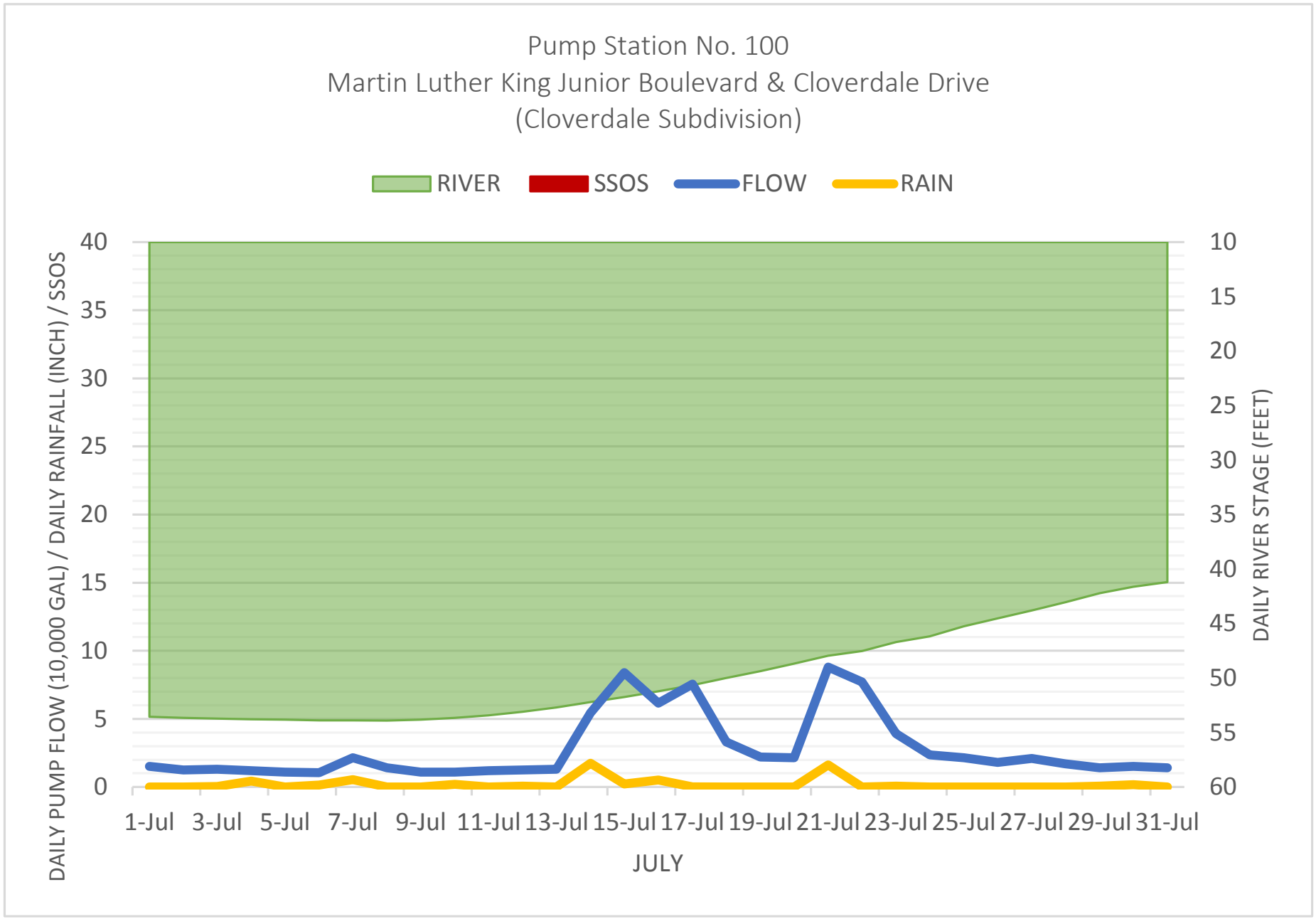
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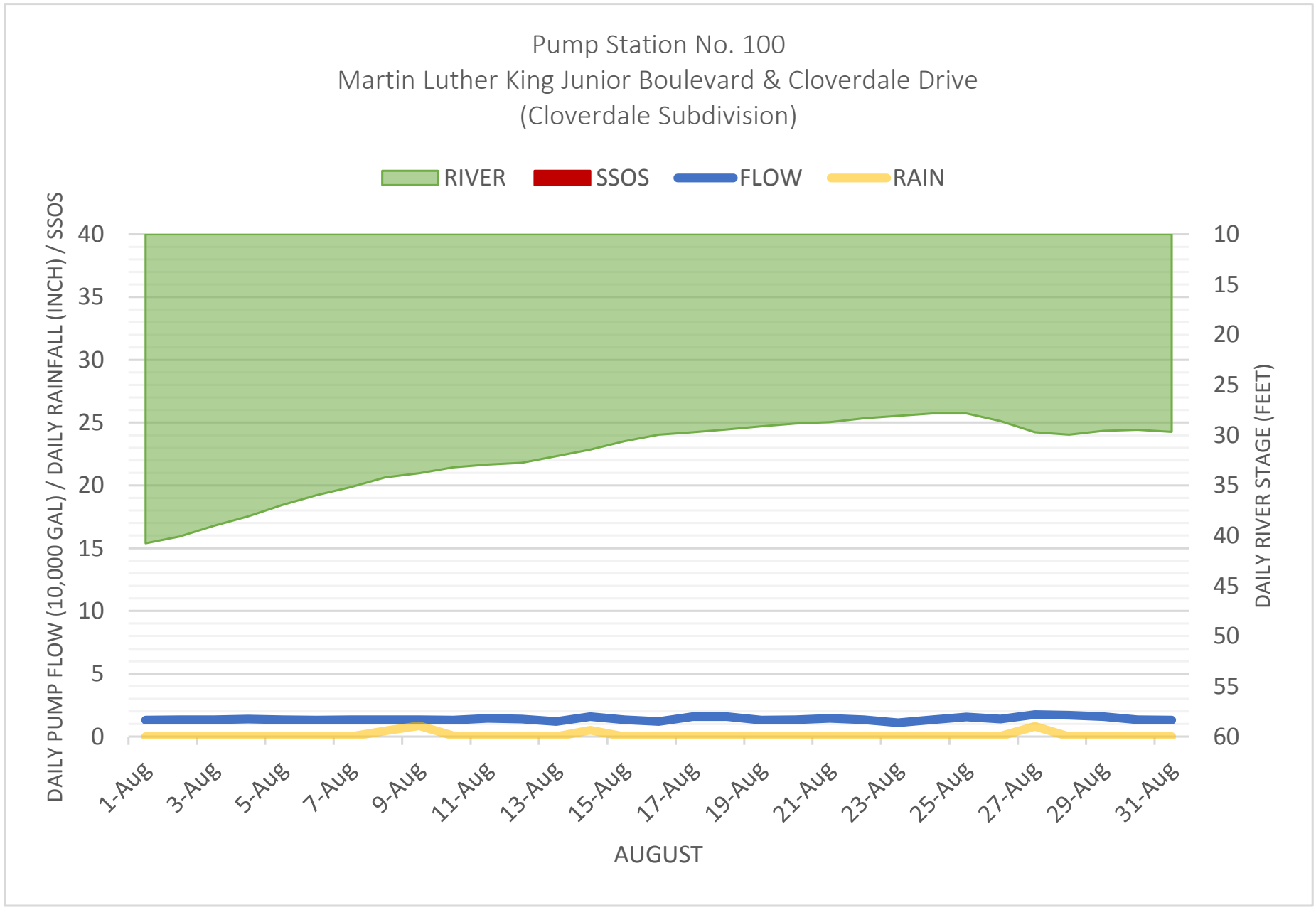
JULY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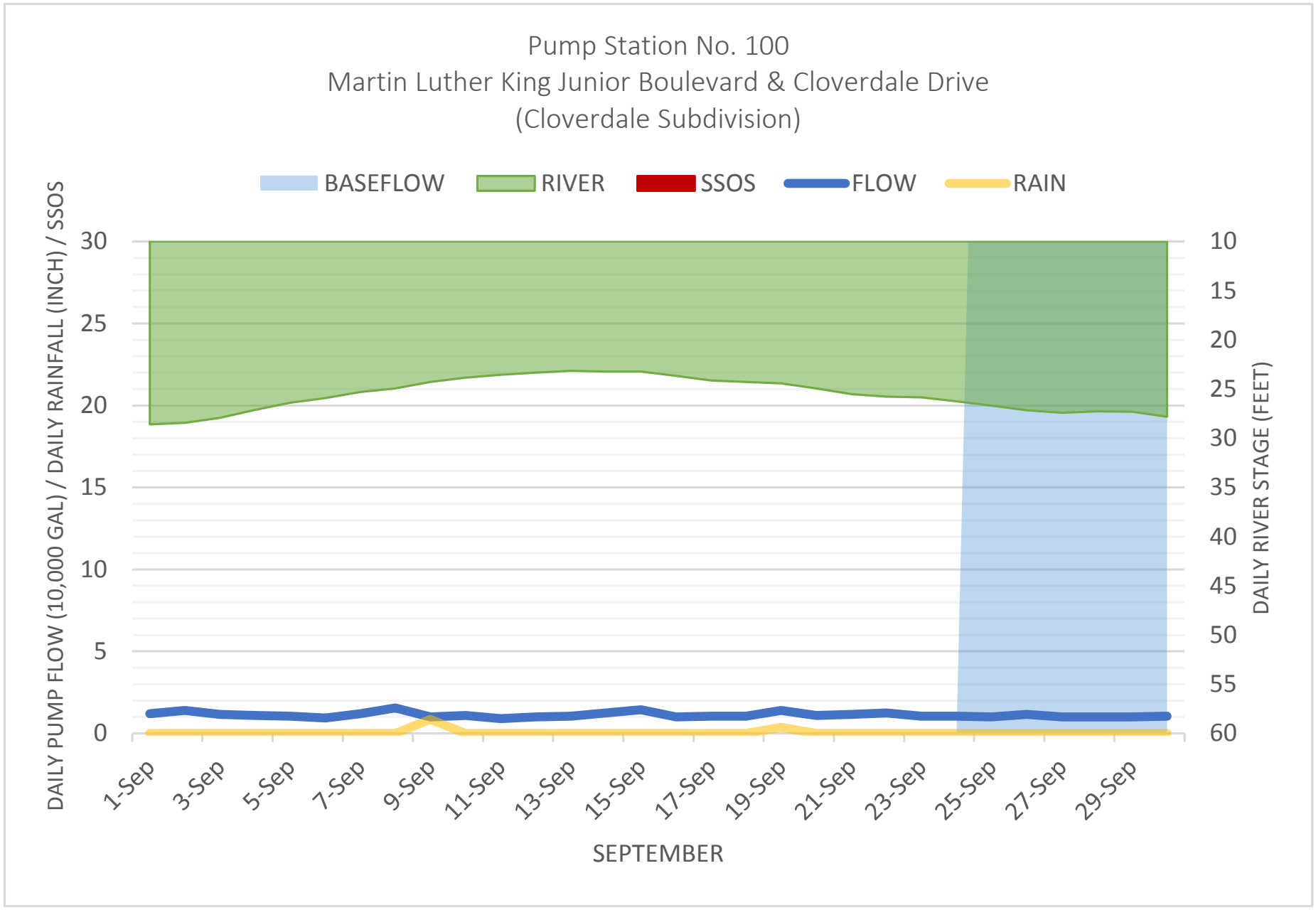
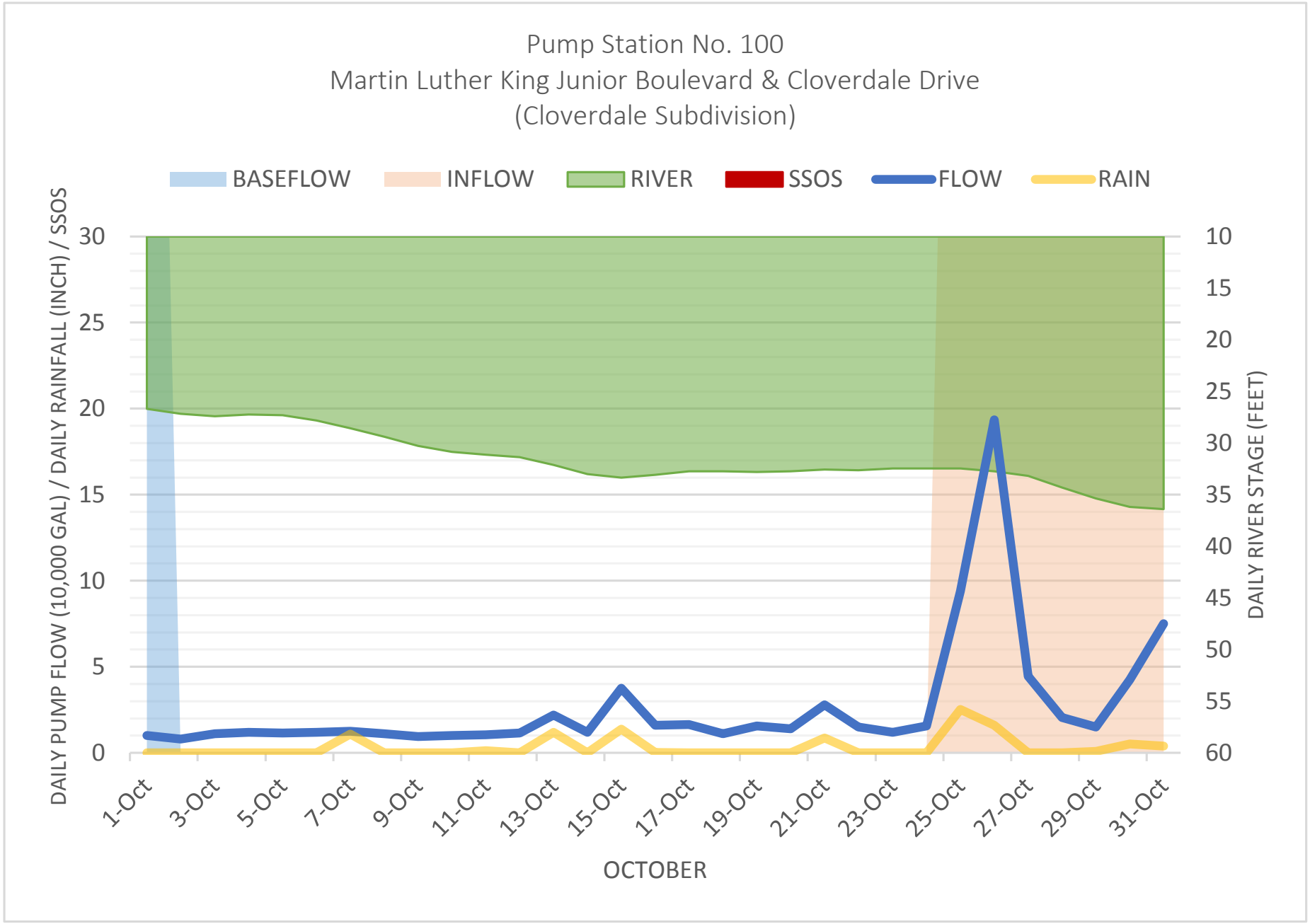
20
25
30
35
40
45
50
55
60
1-Aug
3-Aug
5-Aug
7-Aug
9-Aug
11-Aug
13-Aug
15-Aug
17-Aug
19-Aug
21-Aug
23-Aug
25-Aug
27-Aug
29-Aug
31-Aug
AUGUST


Pump Station No. 100
Martin Luther King Junior Boulevard & Cloverdale Drive
(Cloverdale Subdivision)
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Sep
3-Sep
5-Sep
7-Sep
9-Sep
11-Sep
13-Sep
15-Sep
17-Sep
19-Sep
21-Sep
23-Sep
25-Sep
27-Sep
29-Sep
SEPTEMBER

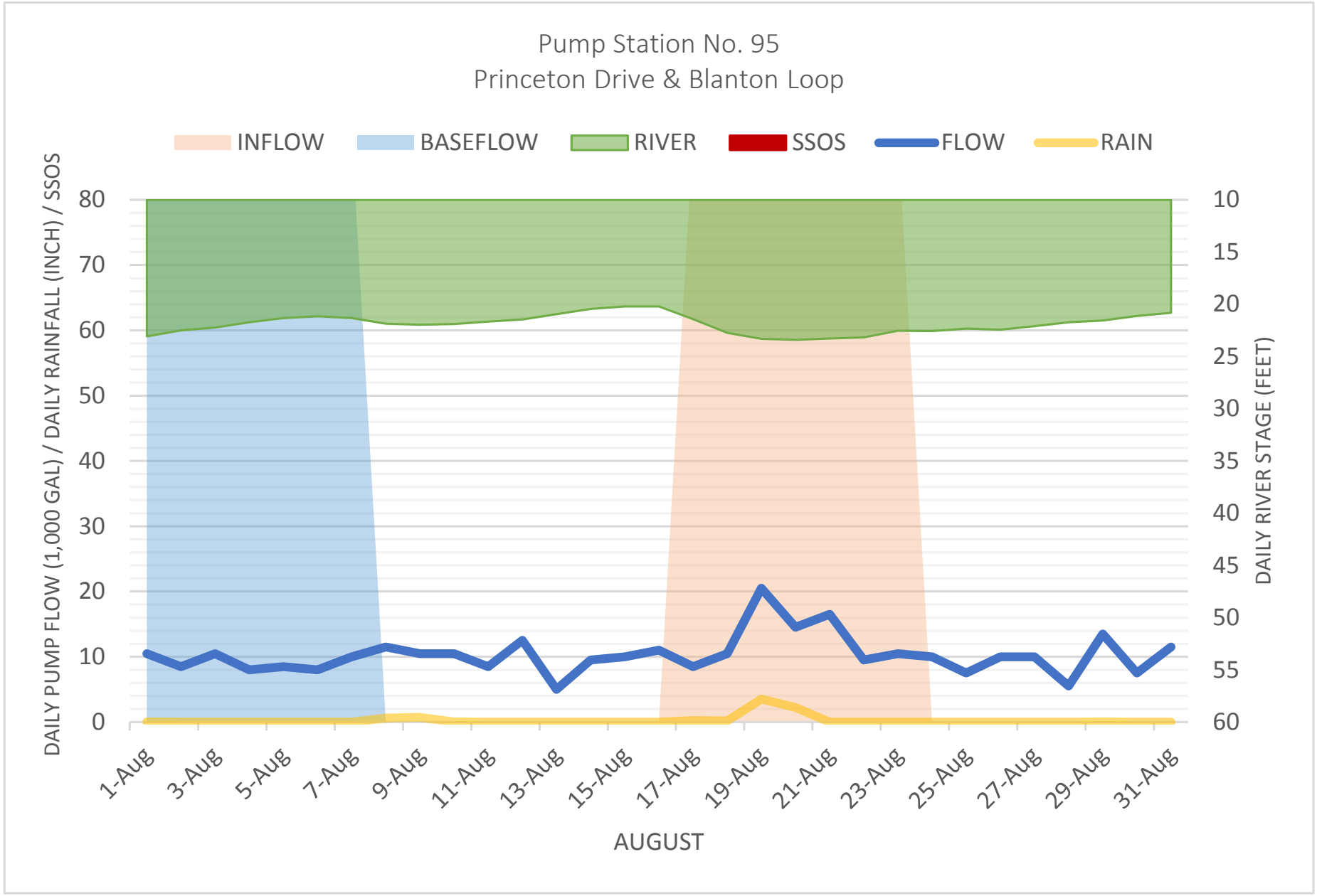

Pump Station No. 100
Martin Luther King Junior Boulevard & Cloverdale Drive
(Cloverdale Subdivision)
BASEFLOW
INFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Oct
3-Oct
5-Oct
7-Oct
9-Oct
11-Oct
13-Oct
15-Oct
17-Oct
19-Oct
21-Oct
23-Oct
25-Oct
27-Oct
29-Oct
31-Oct
OCTOBER

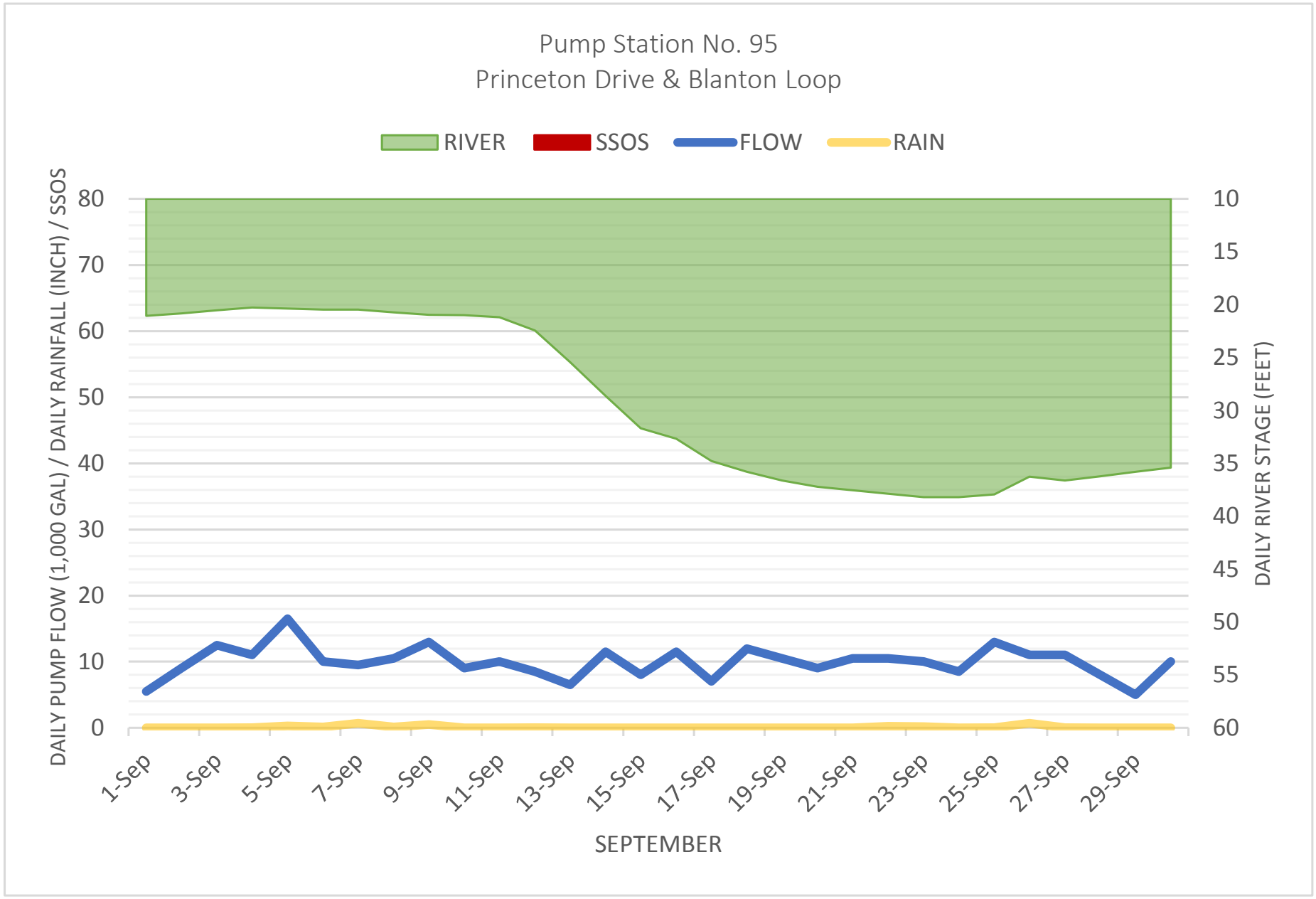
APPENDIX 45

MS28-C/PS95 I/I WORKSHEET

APPENDIX 46

MS28-C/PS95 GRAPHS


Pump Station No. 95
Princeton Drive & Blanton Loop
INFLOW
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
80
70
60
50
40
30
20
10
0
10
15
20
25
30
35
40
45
50
55
60
1-Aug
3-Aug
5-Aug
7-Aug
9-Aug
11-Aug
13-Aug
15-Aug
17-Aug
19-Aug
21-Aug
23-Aug
25-Aug
27-Aug
29-Aug
31-Aug
AUGUST


Pump Station No. 95
Princeton Drive & Blanton Loop
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
80
70
60
50
40
30
20
10
0
10
15
20
25
30
35
40
45
50
55
60
1-Sep
3-Sep
5-Sep
7-Sep
9-Sep
11-Sep
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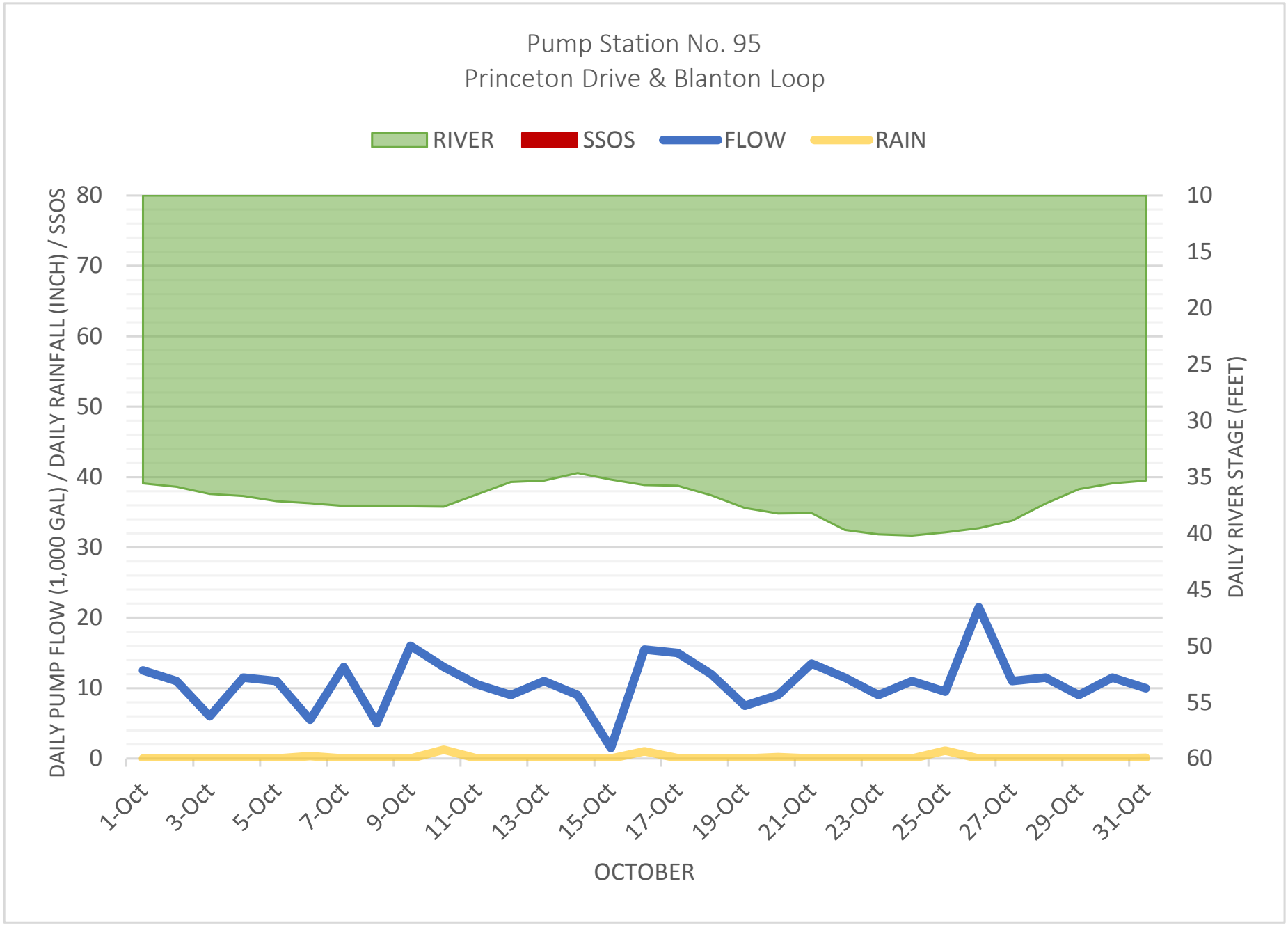
15-Sep
17-Sep
19-Sep
21-Sep
23-Sep
25-Sep
27-Sep
29-Sep
SEPTEMBER


Pump Station No. 95
Princeton Drive & Blanton Loop
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
80
70
60
50
40
30
20
10
0
10
15
20
25
30
35
40
45
50
55
60
1-Oct
3-Oct
5-Oct
7-Oct
9-Oct
11-Oct
13-Oct
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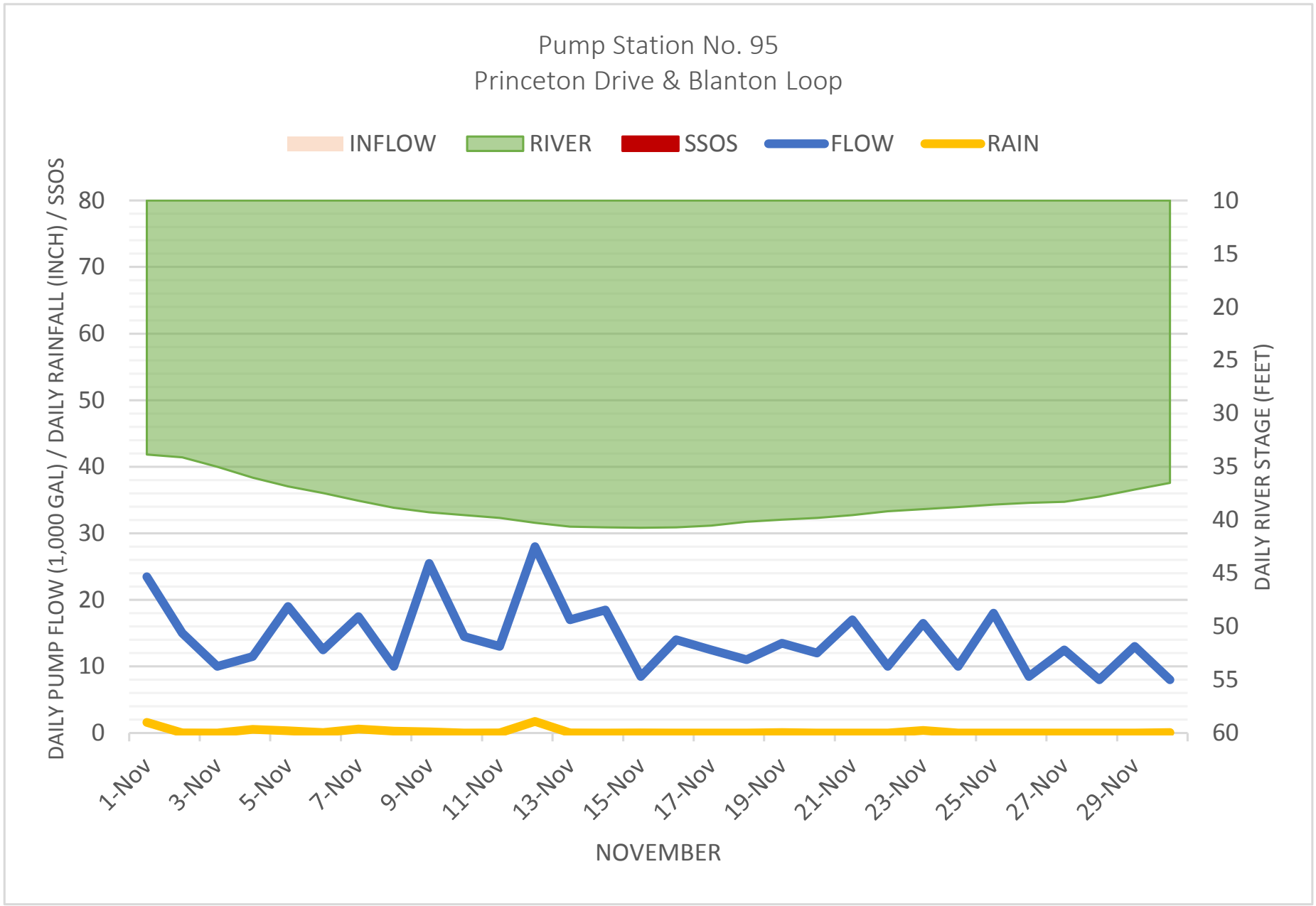
17-Oct
19-Oct
21-Oct
23-Oct
25-Oct
27-Oct
29-Oct
31-Oct
OCTOBER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Princeton Drive & Blanton Loop
INFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
80
70
60
50
40
30
20
10
0
10
15
20
25
30
35
40
45
50
55
60
1-Nov
3-Nov
5-Nov
7-Nov
9-Nov
11-Nov
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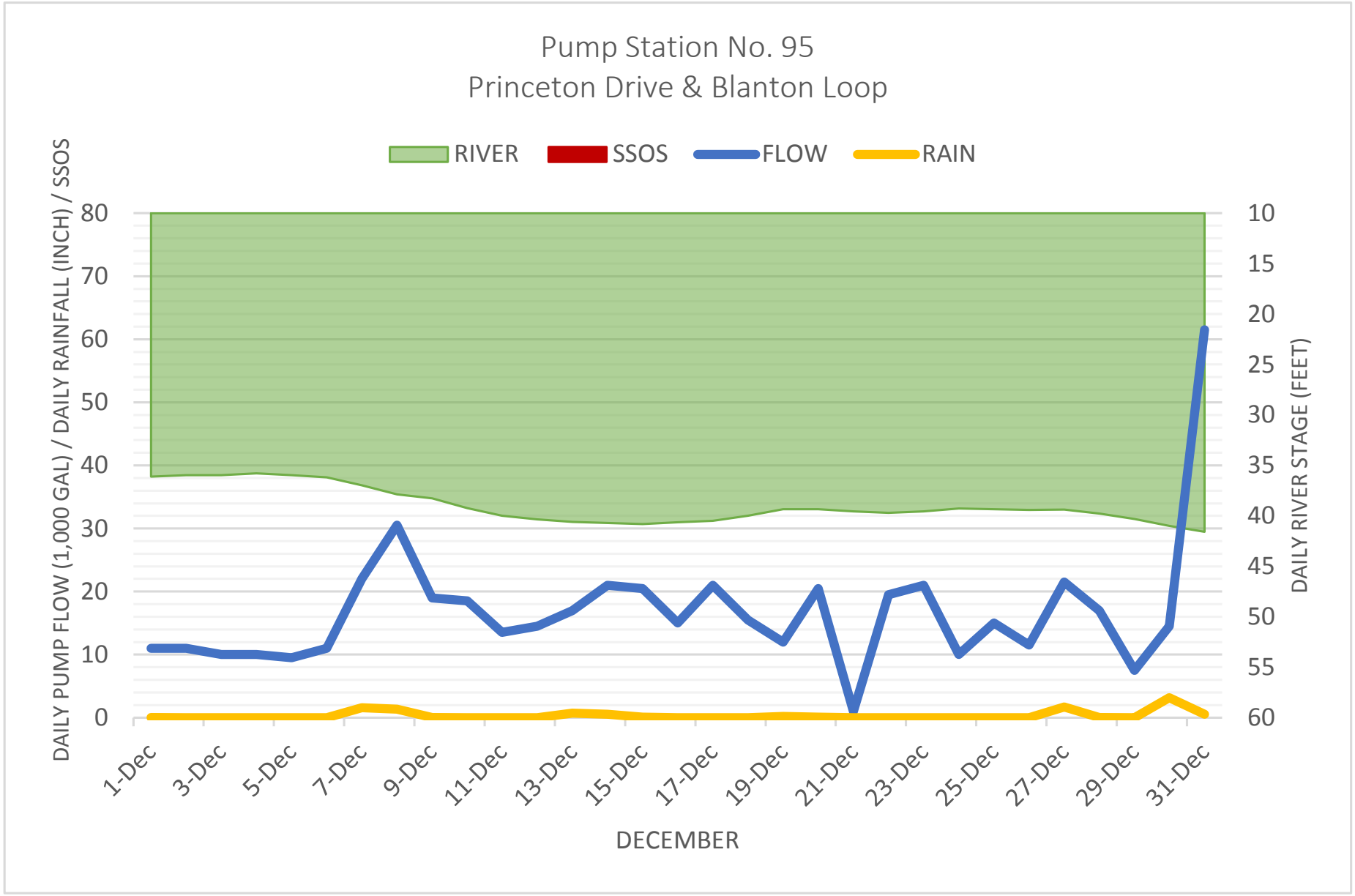
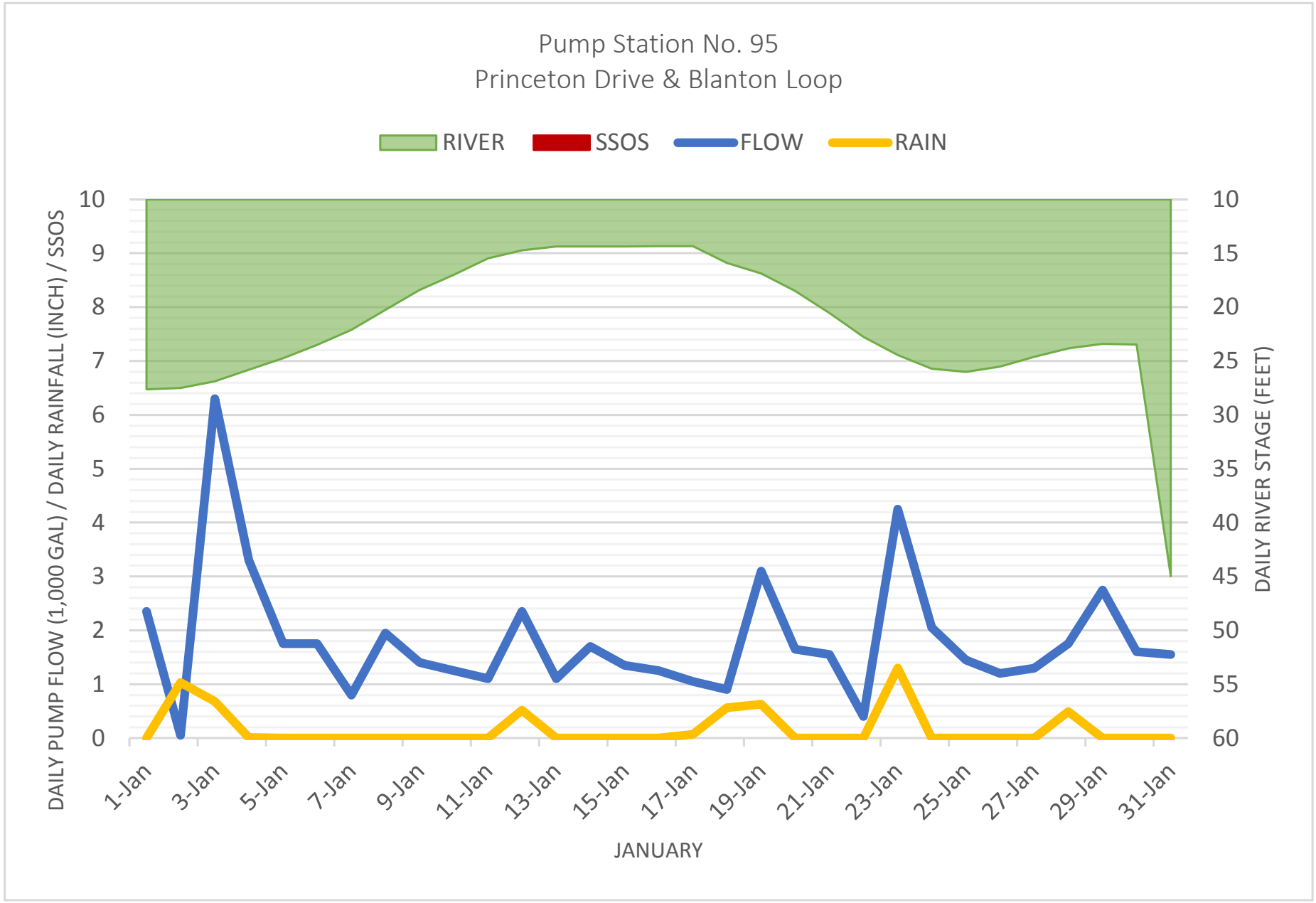
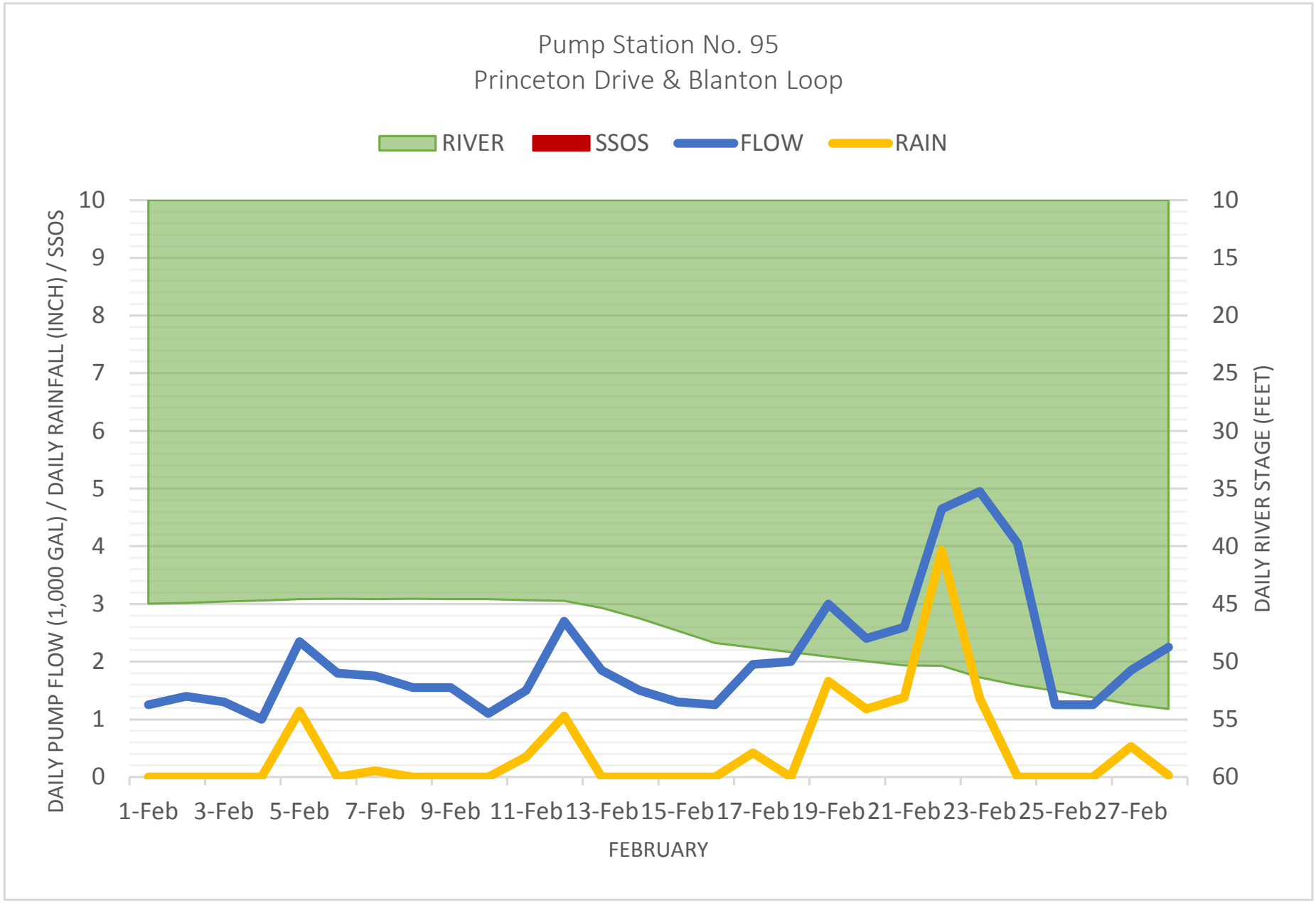
15-Nov
17-Nov
19-Nov
21-Nov
23-Nov
25-Nov
27-Nov
29-Nov
NOVEMBER


Pump Station No. 95
Princeton Drive & Blanton Loop
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
80
70
60
50
40
30
20
10
0
10
15
20
25
30
35
40
45
50
55
60
1-Dec
3-Dec
5-Dec
7-Dec
9-Dec
11-Dec
13-Dec
15-Dec
17-Dec
19-Dec
21-Dec
23-Dec
25-Dec
27-Dec
29-Dec
31-Dec
DECEMBER


Pump Station No. 95
Princeton Drive & Blanton Loop
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
10
9
8
7
6
5
4
3
2
1
0
10
15
20
25
30
35
40
45
50
55
60
1-Jan
3-Jan
5-Jan
7-Jan
9-Jan
11-Jan
13-Jan
15-Jan
17-Jan
19-Jan
21-Jan
23-Jan
25-Jan
27-Jan
29-Jan
31-Jan
JANUARY


Pump Station No. 95
Princeton Drive & Blanton Loop
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
0
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2
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4
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20
15
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1-Feb
3-Feb
5-Feb
7-Feb
9-Feb
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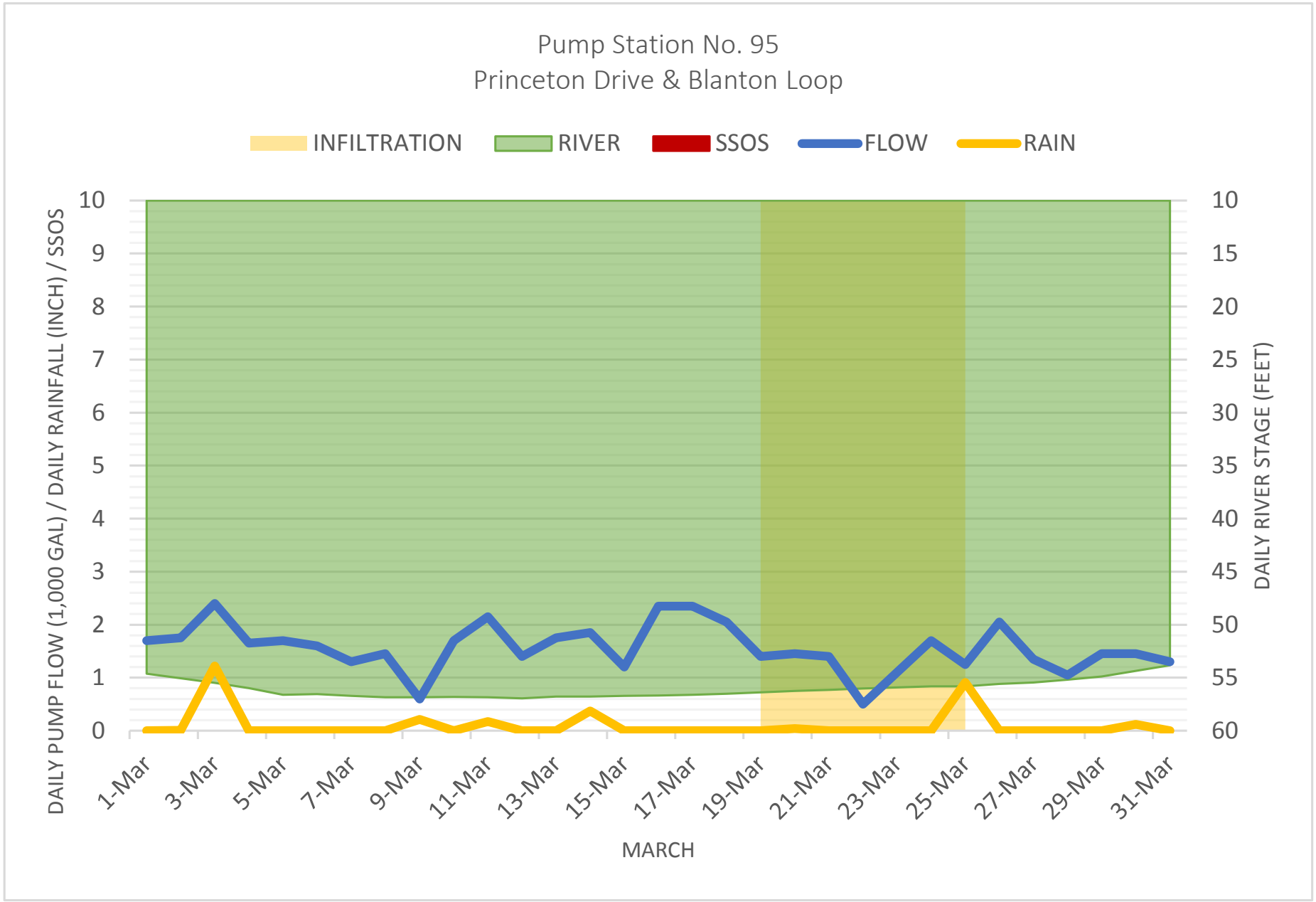
13-Feb
15-Feb
17-Feb
19-Feb
21-Feb
23-Feb
25-Feb
27-Feb
FEBRUARY


Pump Station No. 95
Princeton Drive & Blanton Loop
INFILTRATION
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
10
9
8
7
6
5
4
3
2
1
0
10
15
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25
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45
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55
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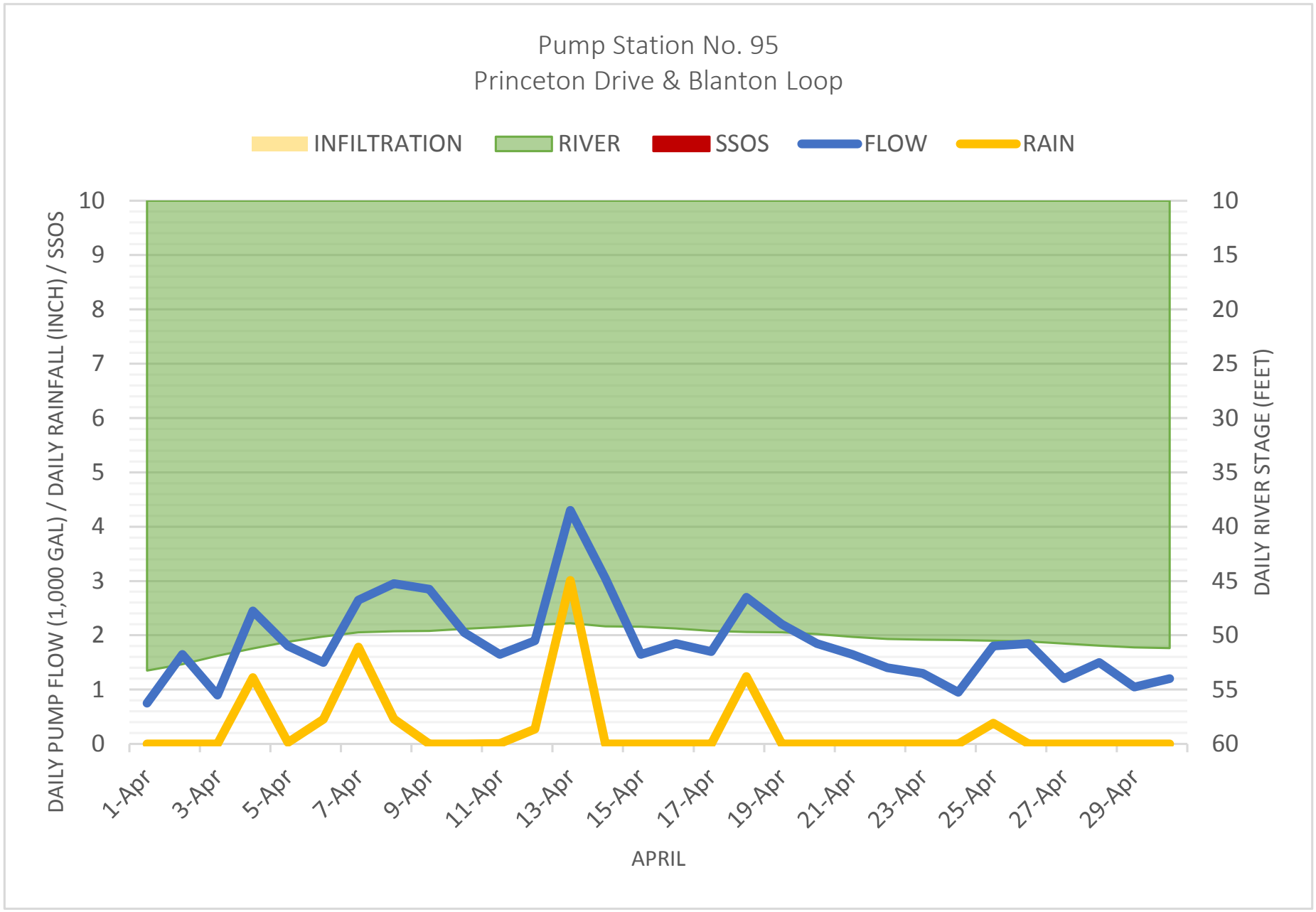
1-Mar
3-Mar
5-Mar
7-Mar
9-Mar
11-Mar
13-Mar
15-Mar
17-Mar
19-Mar
21-Mar
23-Mar
25-Mar
27-Mar
29-Mar
31-Mar
MARCH


Pump Station No. 95
Princeton Drive & Blanton Loop
INFILTRATION
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
10
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1-Apr
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11-Apr
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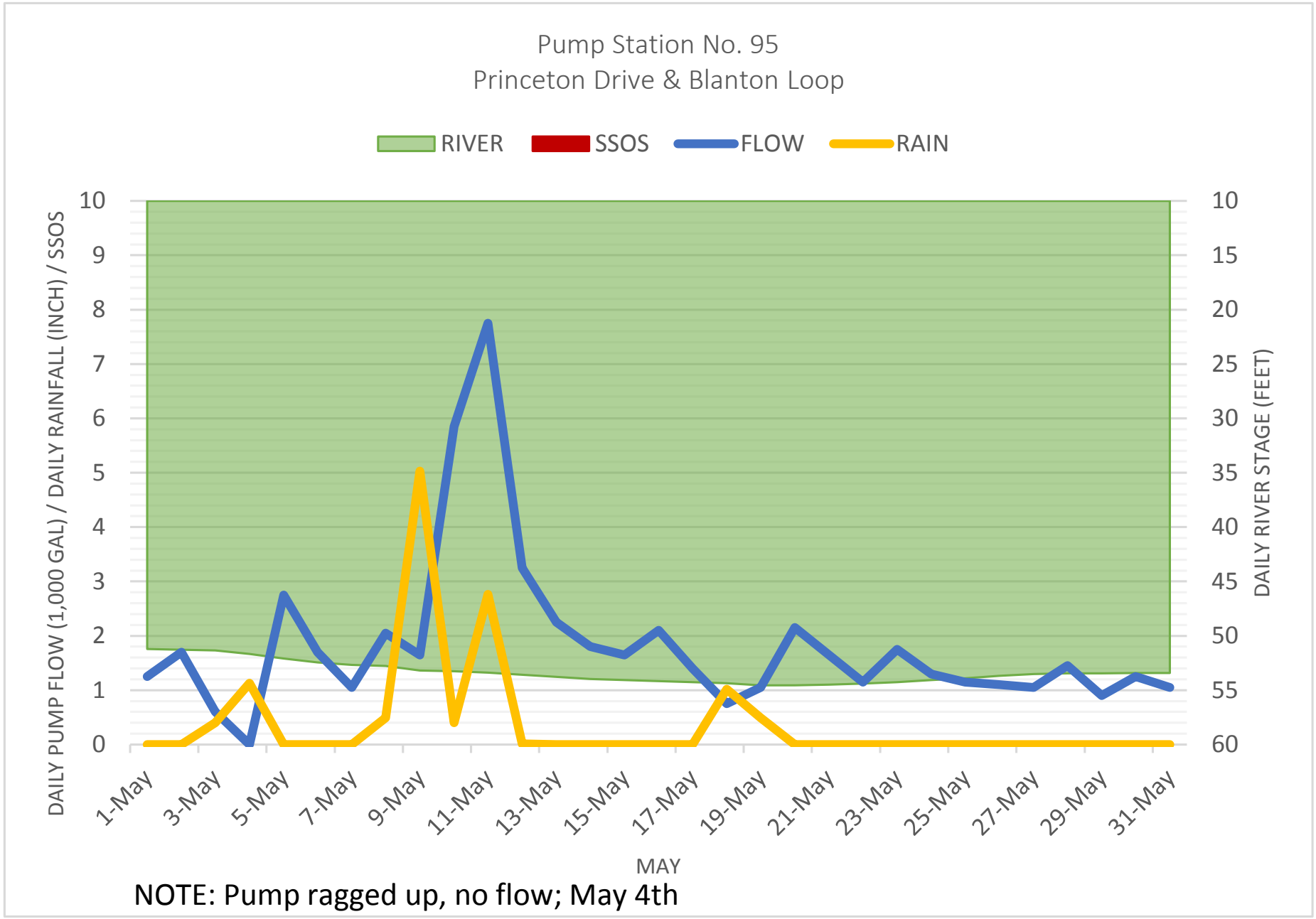
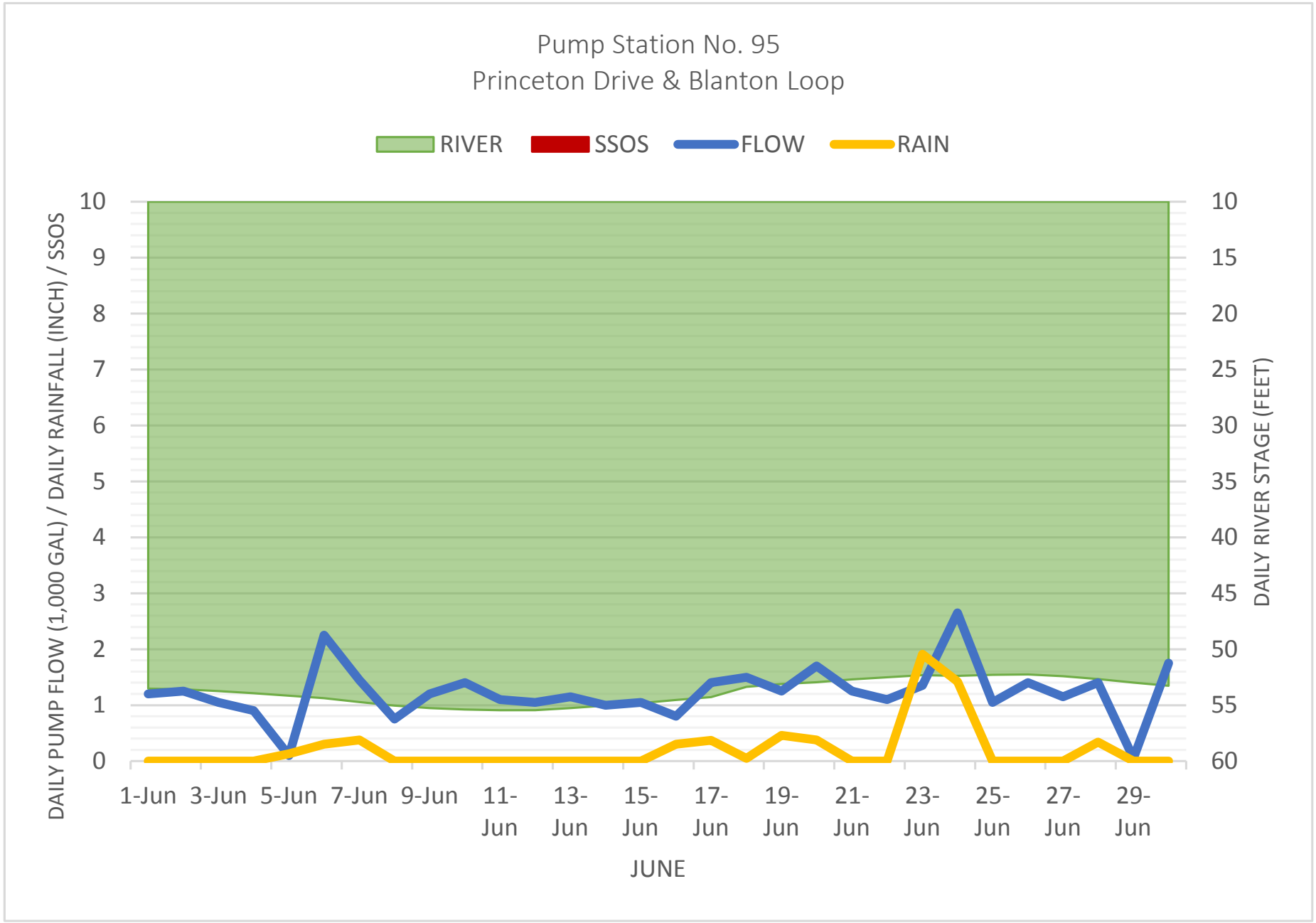
15-Apr
17-Apr
19-Apr
21-Apr
23-Apr
25-Apr
27-Apr
29-Apr
APRIL



NOTE: Pump ragged up, no flow; May 4th


Pump Station No. 95
Princeton Drive & Blanton Loop
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
0
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6
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60
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45
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35
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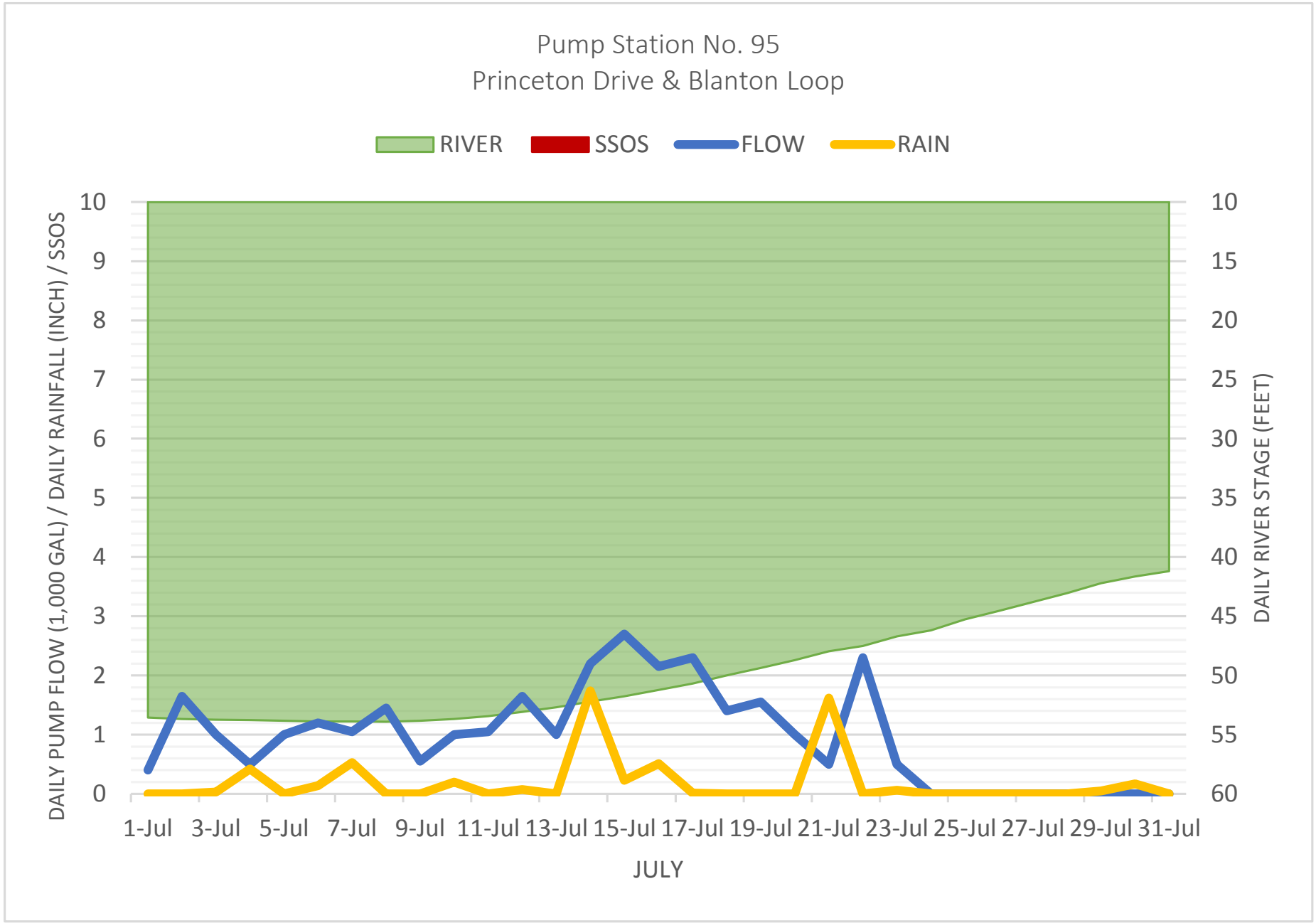
25
20
15
10
1-Jun
3-Jun
5-Jun
7-Jun
9-Jun
11-Jun
13-Jun
15-Jun
17-Jun
19-Jun
21-Jun
23-Jun
25-Jun
27-Jun
29-Jun
JUNE


Pump Station No. 95
Princeton Drive & Blanton Loop
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
0
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1-Jul
3-Jul
5-Jul
7-Jul
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11-Jul
13-Jul
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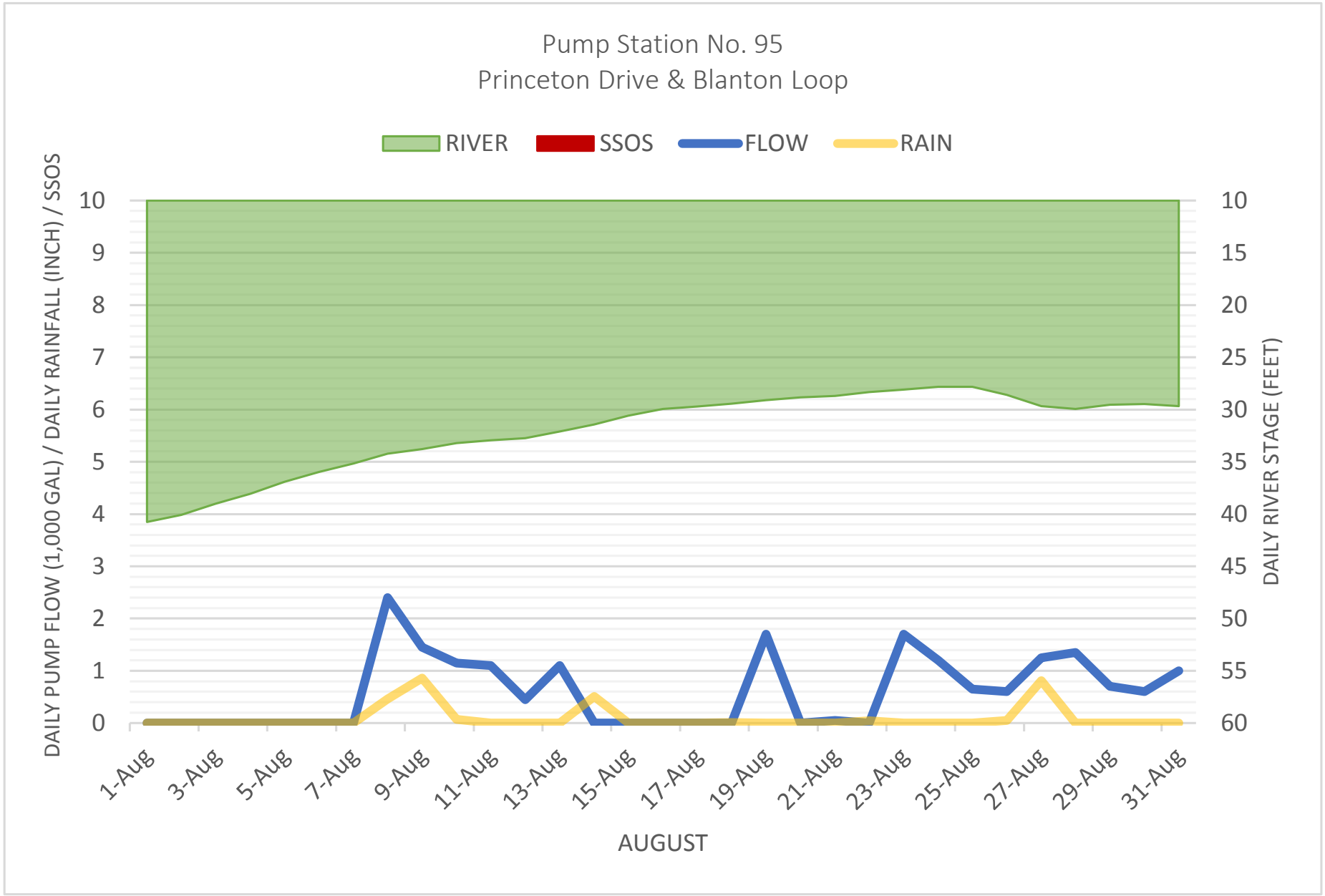
17-Jul
19-Jul
21-Jul
23-Jul
25-Jul
27-Jul
29-Jul
31-Jul
JULY


Pump Station No. 95
Princeton Drive & Blanton Loop
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
10
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6
5
4
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2
1
0
10
15
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25
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40
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60
1-Aug
3-Aug
5-Aug
7-Aug
9-Aug
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17-Aug
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21-Aug
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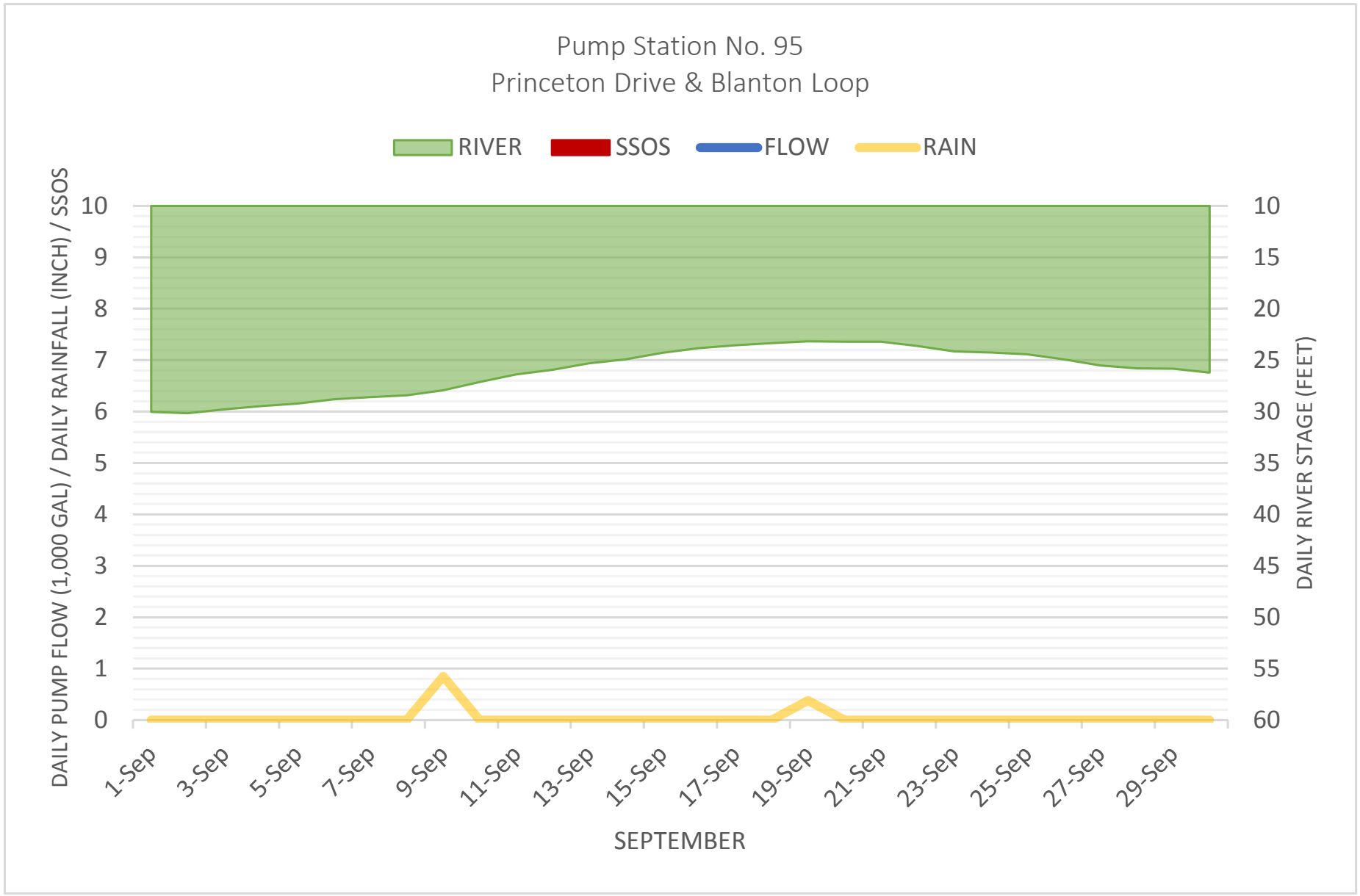
25-Aug
27-Aug
29-Aug
31-Aug
AUGUST


Pump Station No. 95
Princeton Drive & Blanton Loop
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
10
9
8
7
6
5
4
3
2
1
0
10
15
20
25
30
35
40
45
50
55
60
1-Sep
3-Sep
5-Sep
7-Sep
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17-Sep
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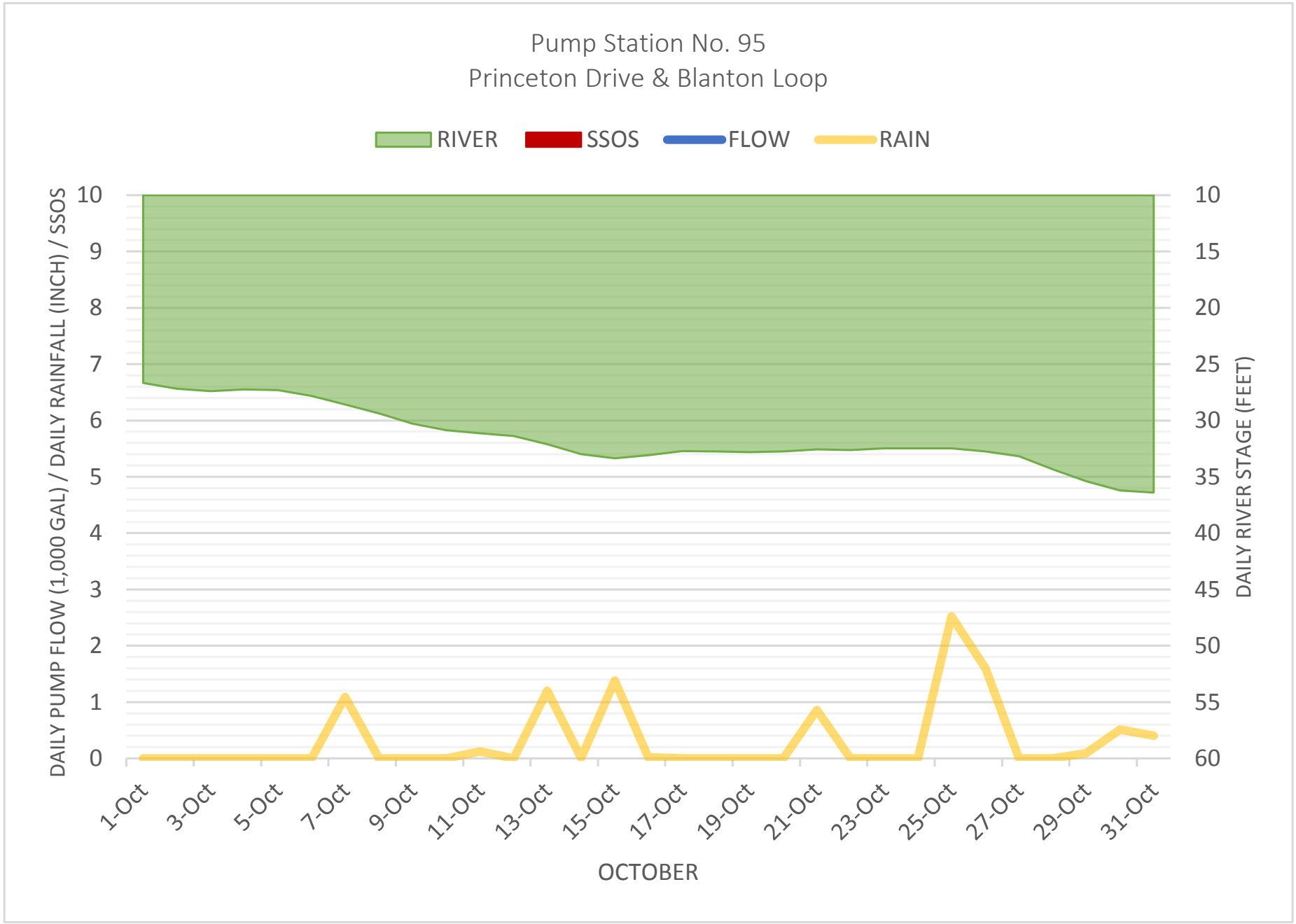
21-Sep
23-Sep
25-Sep
27-Sep
29-Sep
SEPTEMBER


Pump Station No. 95
Princeton Drive & Blanton Loop
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
0
1
2
3
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5
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7
8
9
10
10
15
20
25
30
35
40
45
50
55
60
1-Oct
3-Oct
5-Oct
7-Oct
9-Oct
11-Oct
13-Oct
15-Oct
17-Oct
19-Oct
21-Oct
23-Oct
25-Oct
27-Oct
29-Oct
31-Oct
OCTOBER

APPENDIX 47

MS29/PS52 I/I WORKSHEET

MS29/PS52
INFLOW & INFILTRATION WORKSHEET

Infiltration

	feet	miles	diameter	inch-miles	
30" Gravity	2593	0.491098485	30	14.73295	
27" Gravity	12805	2.425189394	27	65.48011	
10" Gravity	4380	0.829545455	10	8.295455	
8" Gravity	2838	0.5375	8	4.3	
6" laterals	515	0.097537879	6	0.585227	
				93.39375	**total inch-miles in system**
TOTAL MAINLINES	23131				

maximum average infiltration	inch-miles		
90,571.4286	93.39	**969.7804**	**total gpd/idm**

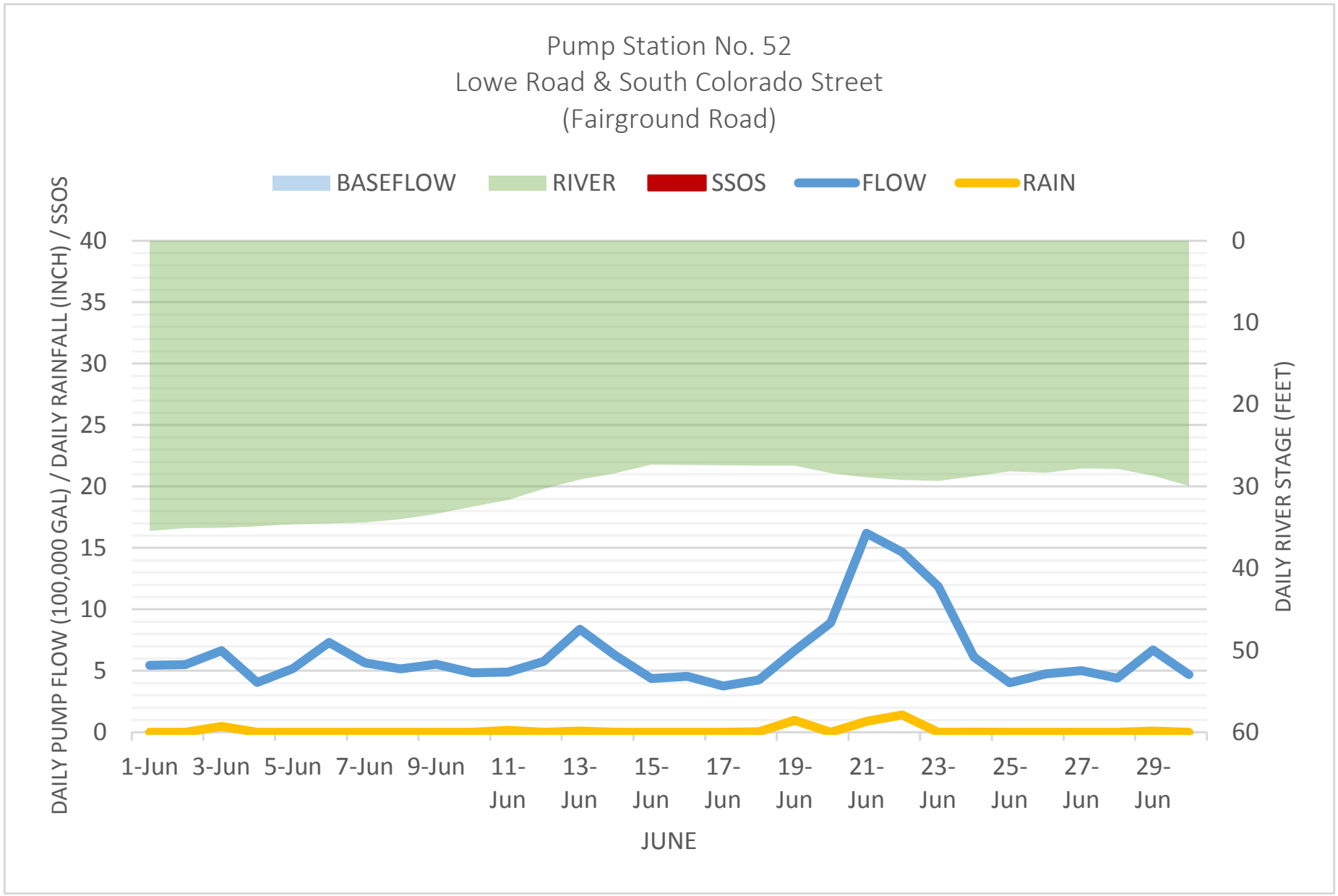
Inflow

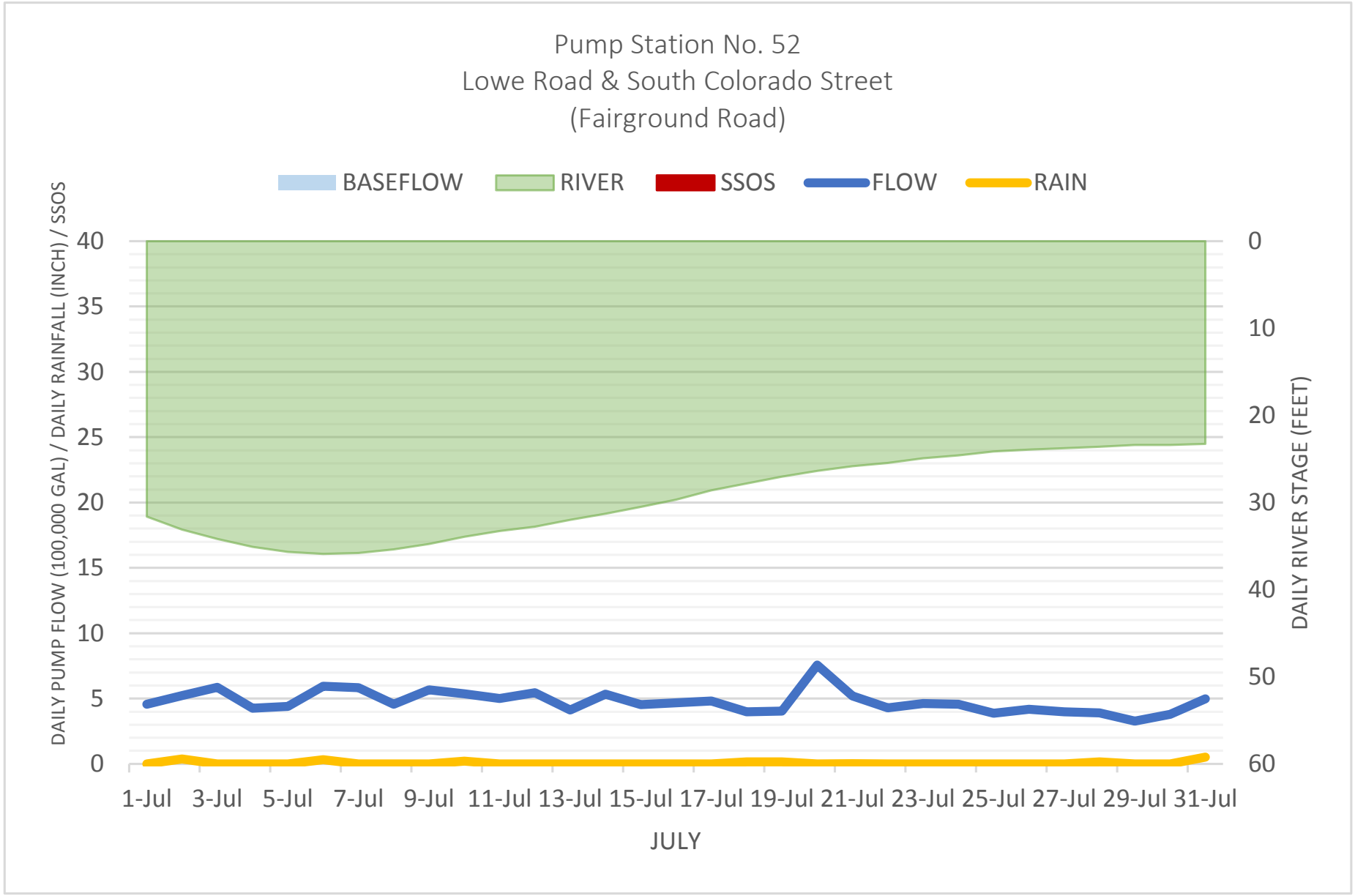
	feet	miles	diameter	inch-miles	
30" Gravity	2593	0.491098485	30	14.73295	
27" Gravity	12805	2.425189394	27	65.48011	
10" Gravity	4380	0.829545455	10	8.295455	
8" Gravity	2838	0.5375	8	4.3	
6" laterals	515	0.097537879	6	0.585227	
				93.39375	**total inch-miles in system**

maximum average inflow	inch-miles		
350,428.5714	93.39	**3752.163**	**total gpd/idm**

APPENDIX 48

MS29/PS52 GRAPHS


Pump Station No. 52
Lowe Road & South Colorado Street
(Fairground Road)
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
0
10
20
30
40
50
60
1-Jun
3-Jun
5-Jun
7-Jun
9-Jun
11-Jun
13-Jun
15-Jun
17-Jun
19-Jun
21-Jun
23-Jun
25-Jun
27-Jun
29-Jun
JUNE


Pump Station No. 52
Lowe Road & South Colorado Street
(Fairground Road)
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
0
10
20
30
40
50
60
1-Jul
3-Jul
5-Jul
7-Jul
9-Jul
11-Jul
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17-Jul
19-Jul
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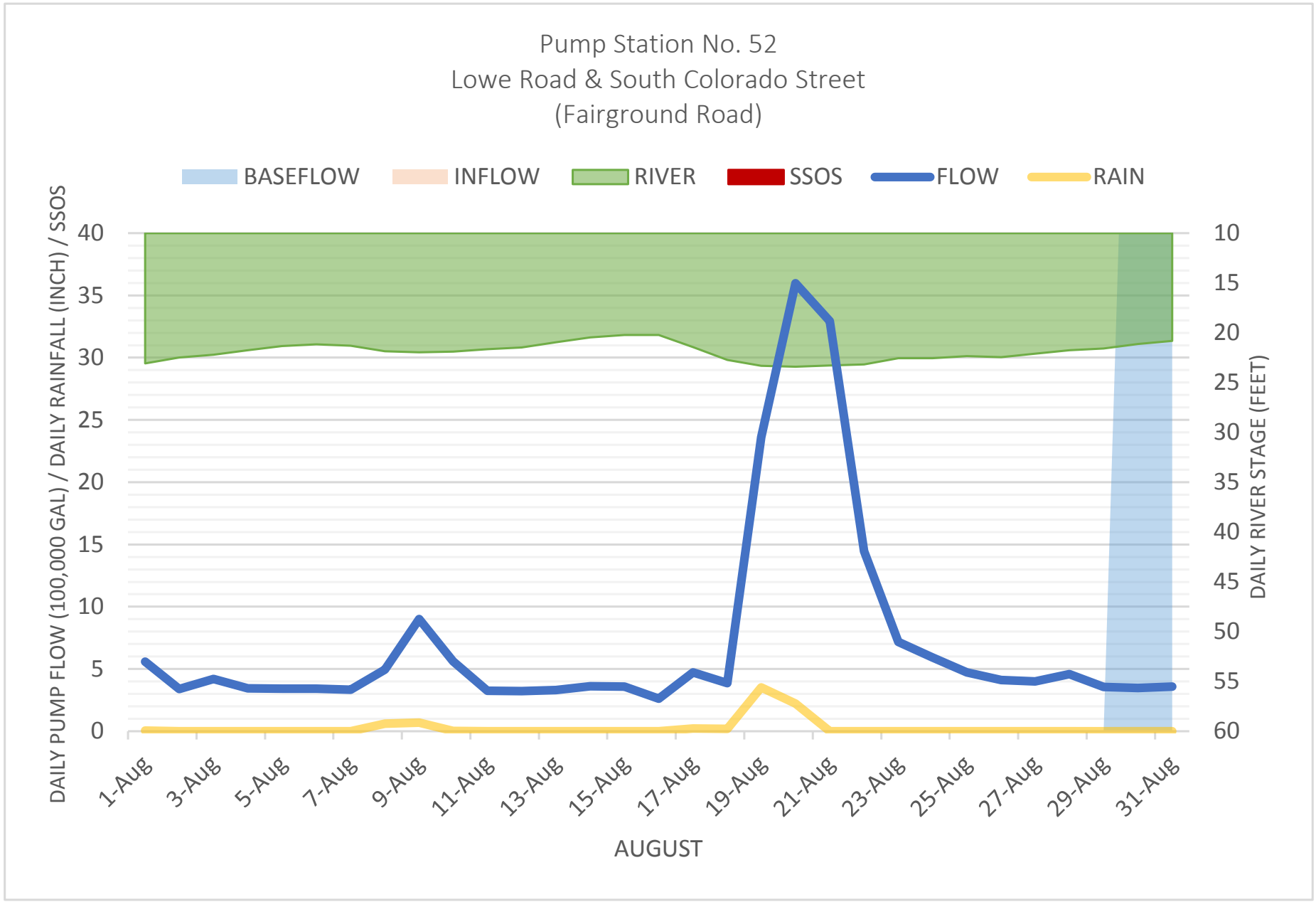
25-Jul
27-Jul
29-Jul
31-Jul
JULY


Pump Station No. 52
Lowe Road & South Colorado Street
(Fairground Road)
BASEFLOW
INFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Aug
3-Aug
5-Aug
7-Aug
9-Aug
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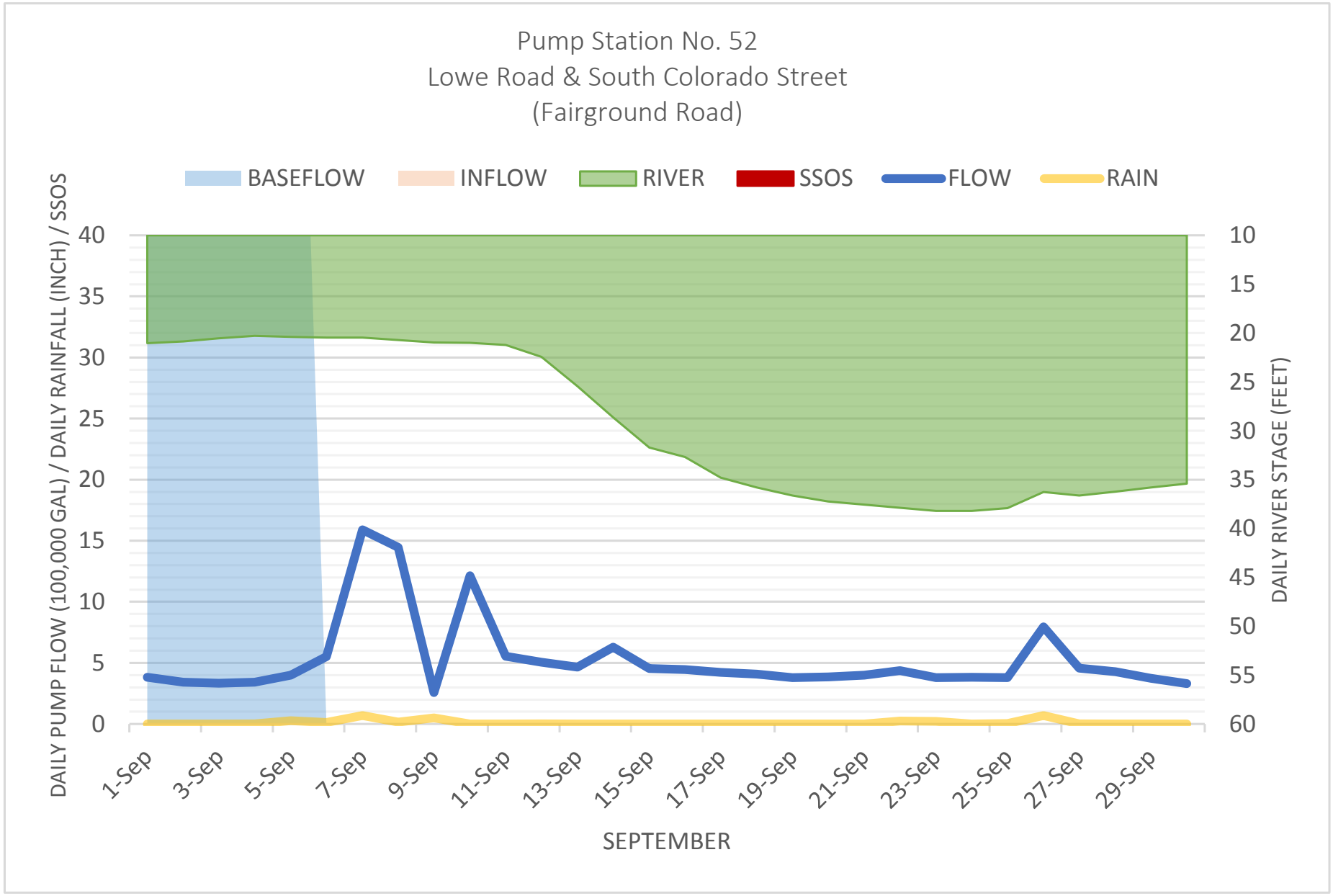
31-Aug
AUGUST


Pump Station No. 52
Lowe Road & South Colorado Street
(Fairground Road)
BASEFLOW
INFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
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45
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55
60
1-Sep
3-Sep
5-Sep
7-Sep
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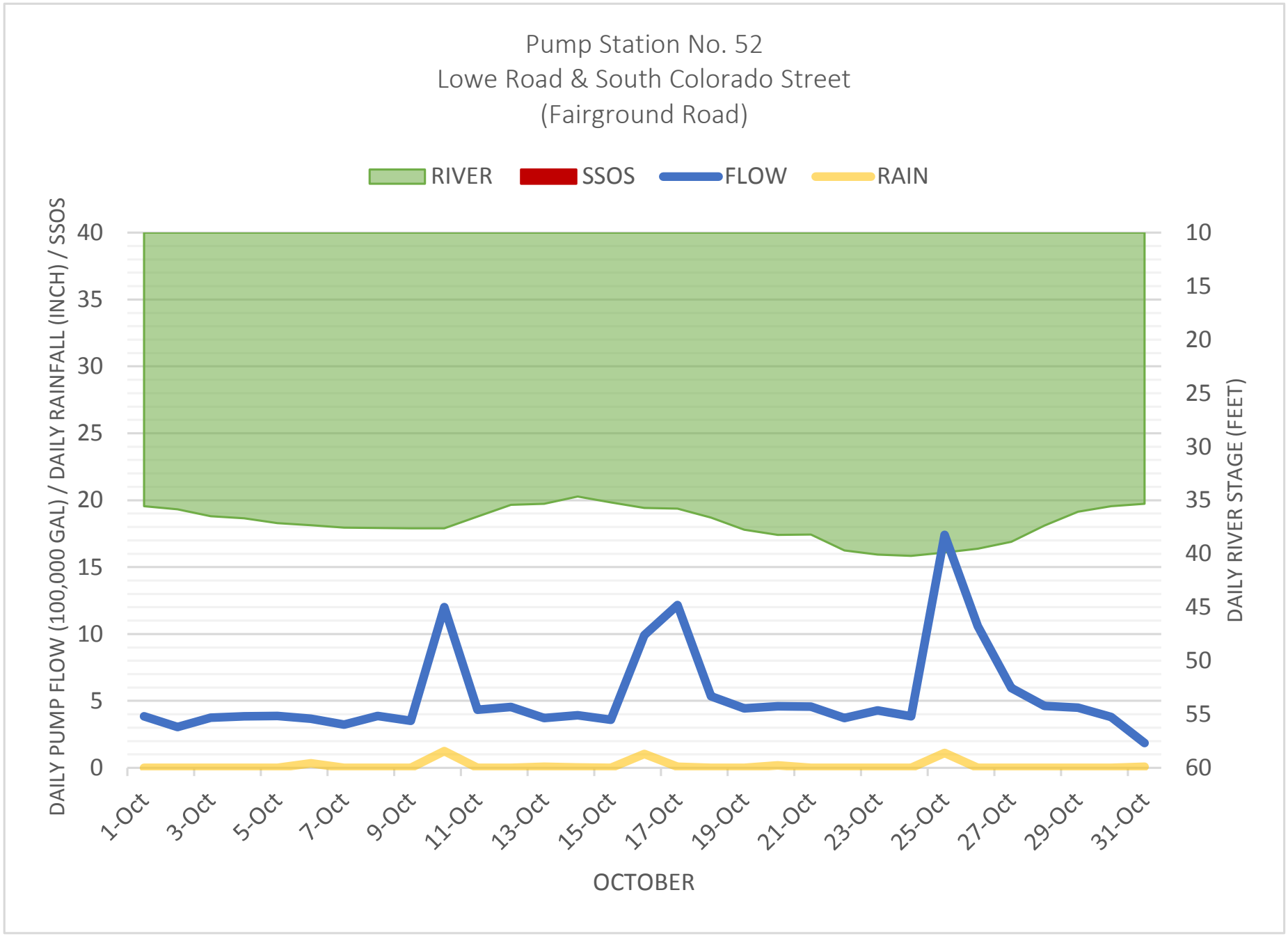
23-Sep
25-Sep
27-Sep
29-Sep
SEPTEMBER


Pump Station No. 52
Lowe Road & South Colorado Street
(Fairground Road)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Oct
3-Oct
5-Oct
7-Oct
9-Oct
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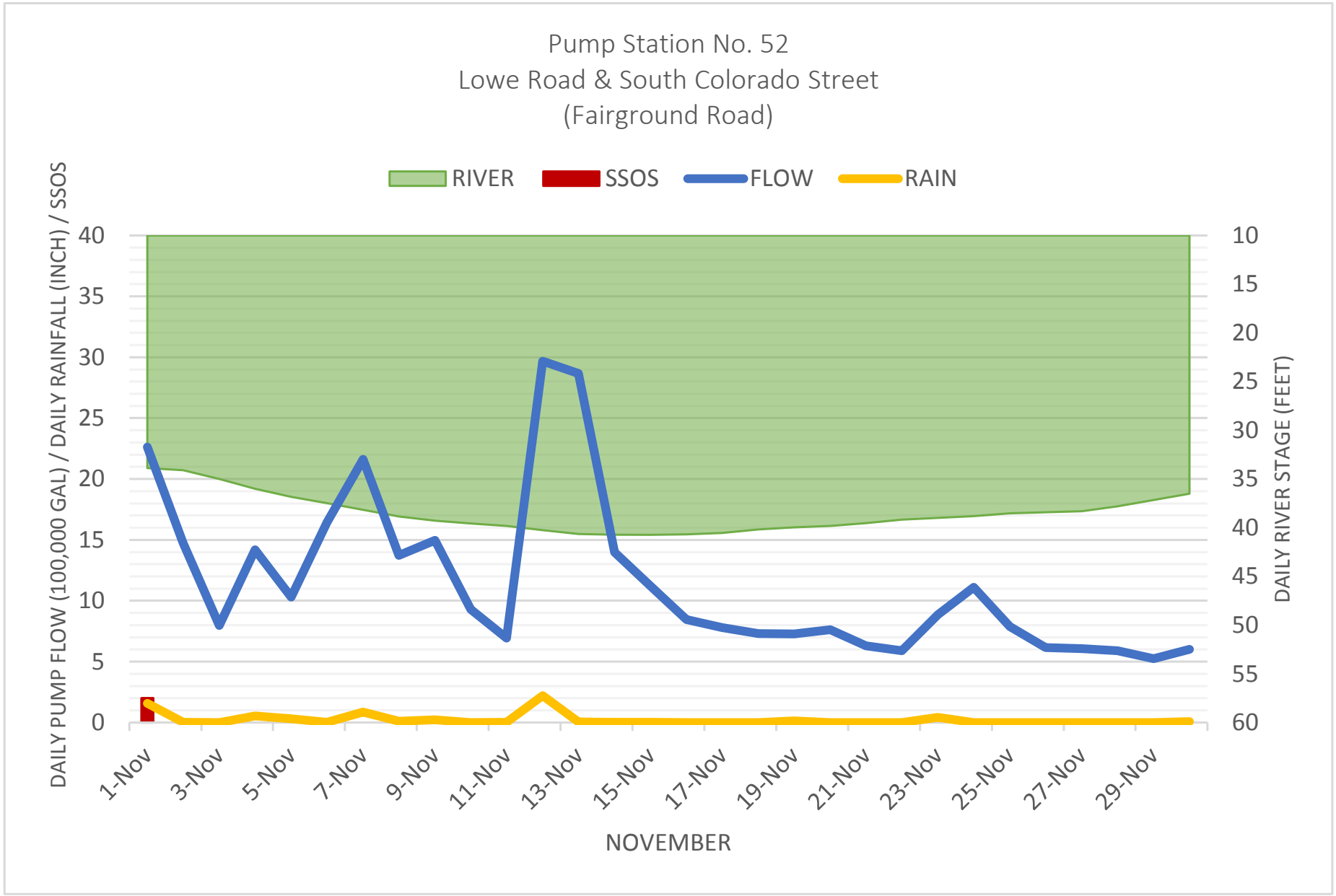
29-Oct
31-Oct
OCTOBER


Pump Station No. 52
Lowe Road & South Colorado Street
(Fairground Road)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
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15
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25
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35
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45
50
55
60
1-Nov
3-Nov
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7-Nov
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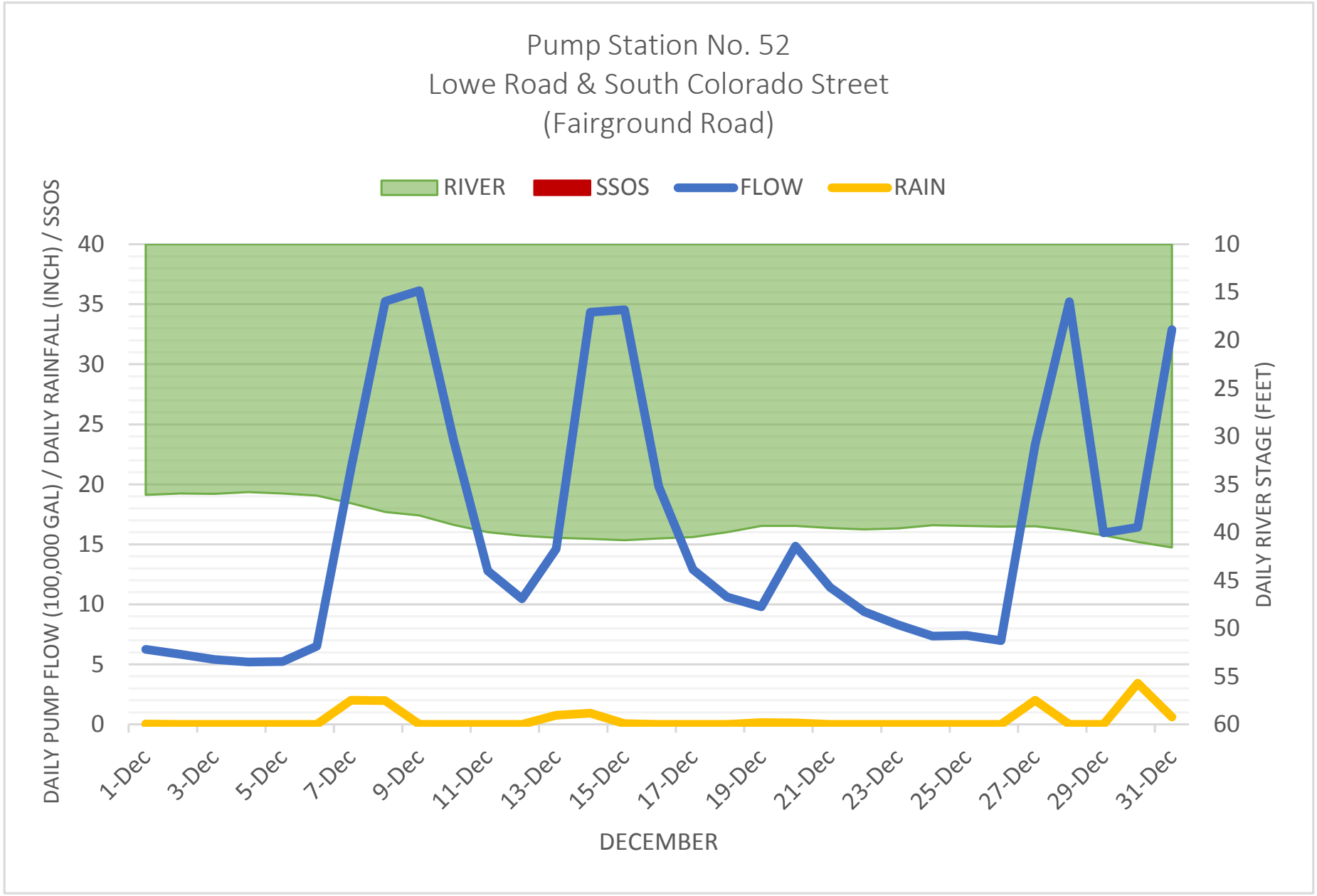
29-Nov
NOVEMBER


Pump Station No. 52
Lowe Road & South Colorado Street
(Fairground Road)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
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1-Dec
3-Dec
5-Dec
7-Dec
9-Dec
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25-Dec
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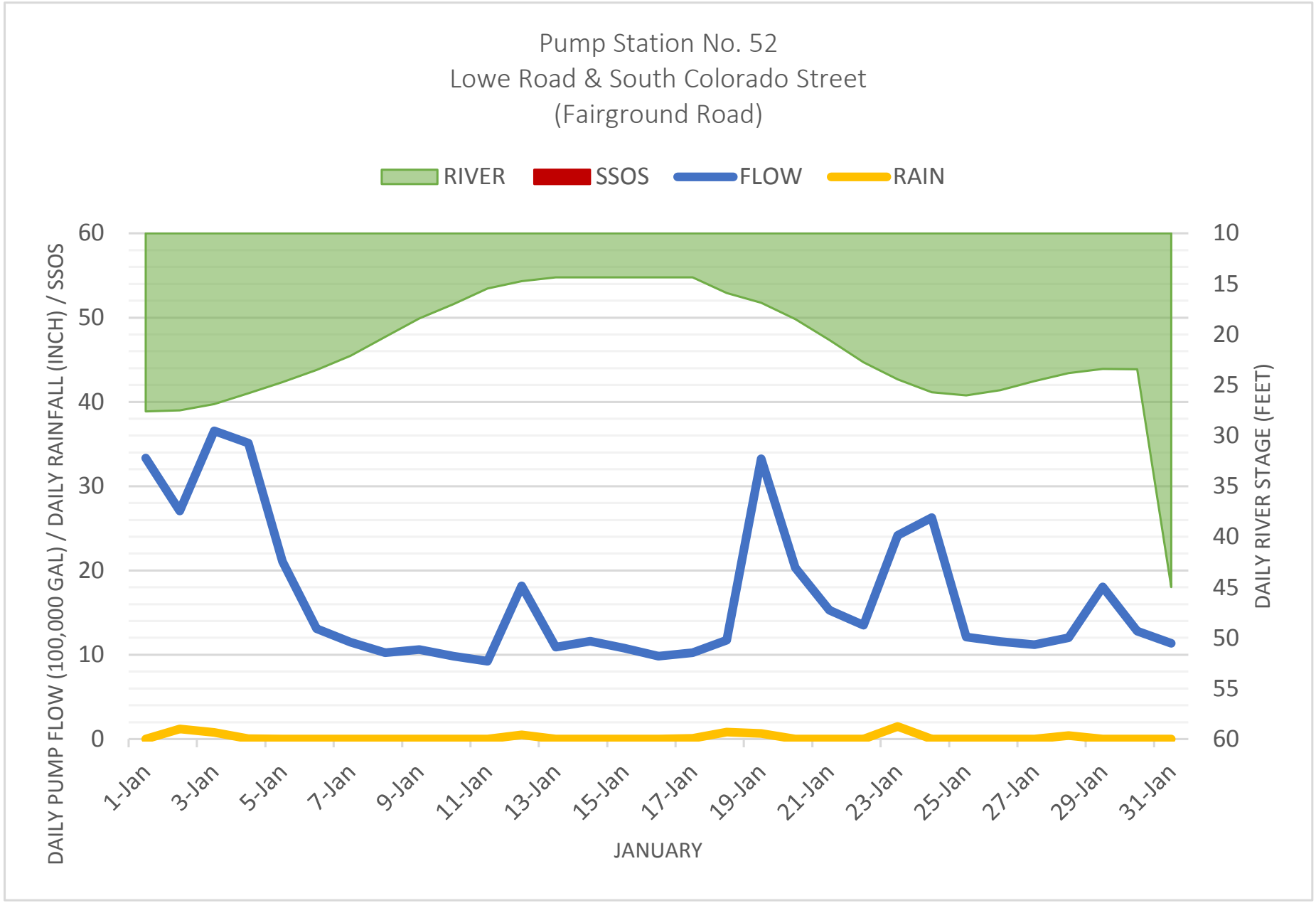
29-Dec
31-Dec
DECEMBER


Pump Station No. 52
Lowe Road & South Colorado Street
(Fairground Road)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
60
50
40
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20
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0
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1-Jan
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7-Jan
9-Jan
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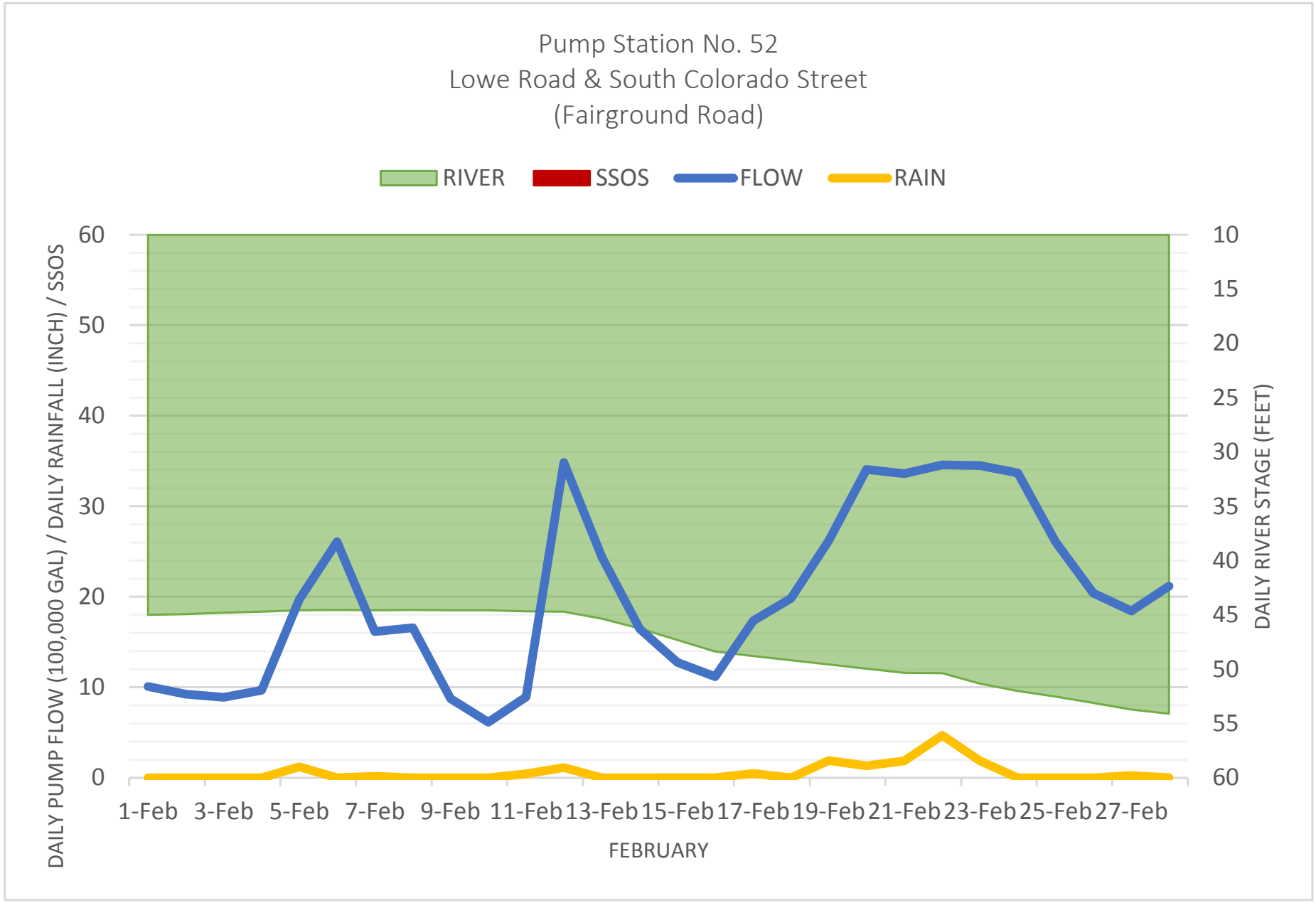
27-Jan
29-Jan
31-Jan
JANUARY


Pump Station No. 52
Lowe Road & South Colorado Street
(Fairground Road)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
60
50
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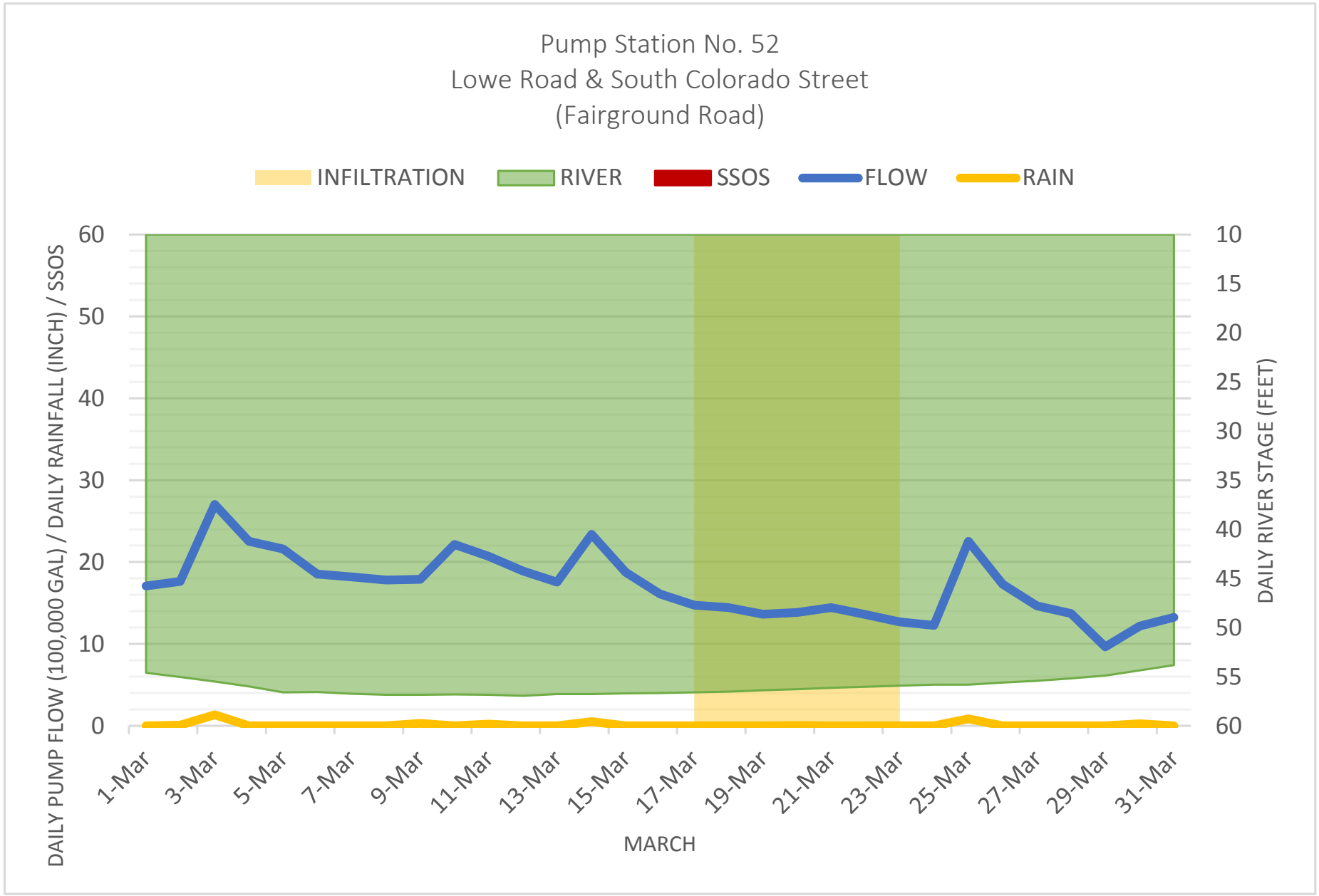
25-Feb
27-Feb
FEBRUARY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Lowe Road & South Colorado Street
(Fairground Road)
INFILTRATION
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
60
50
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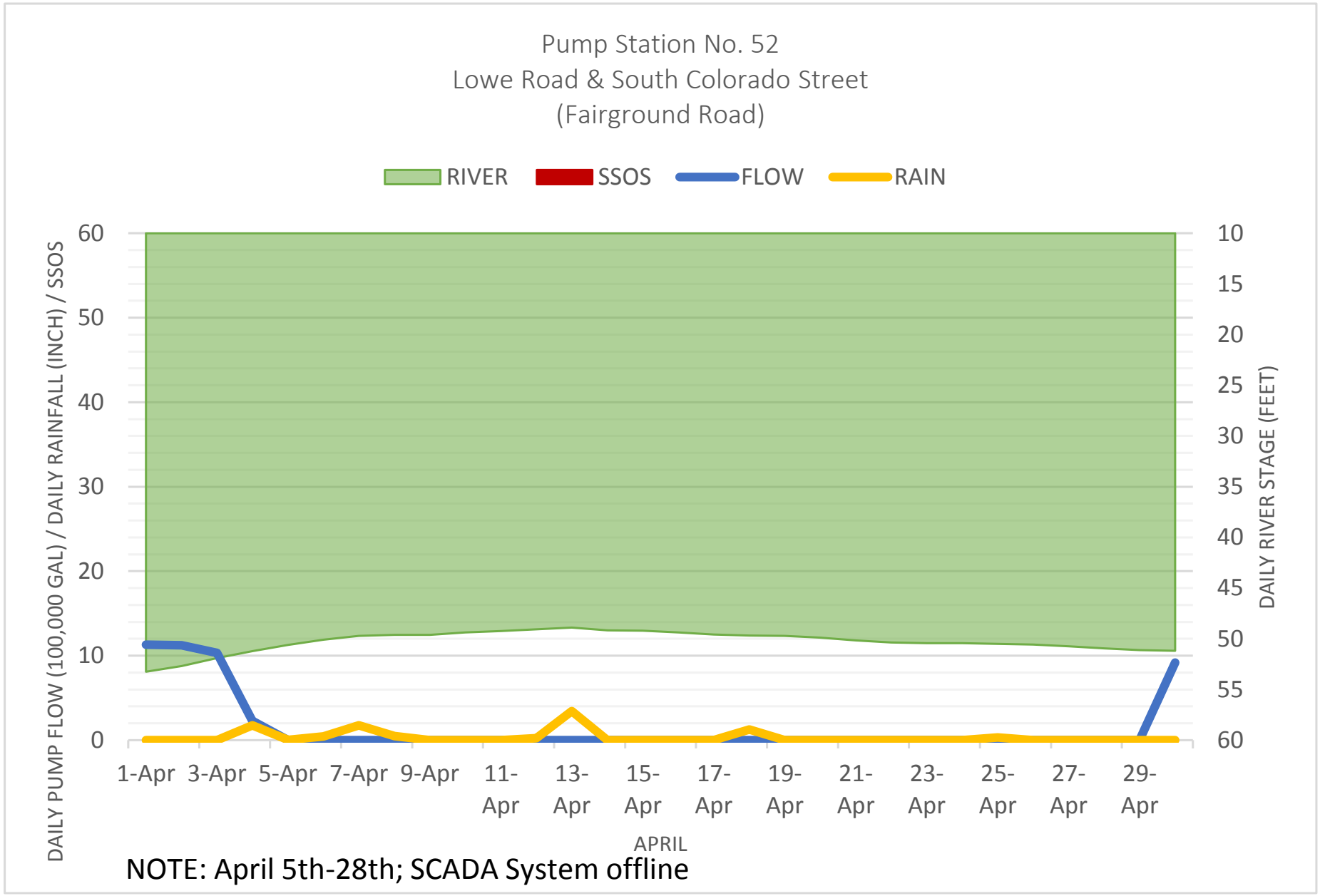
29-Mar
31-Mar
MARCH


Pump Station No. 52
Lowe Road & South Colorado Street
(Fairground Road)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
60
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7-Apr
9-Apr
11-Apr
13-Apr
15-Apr
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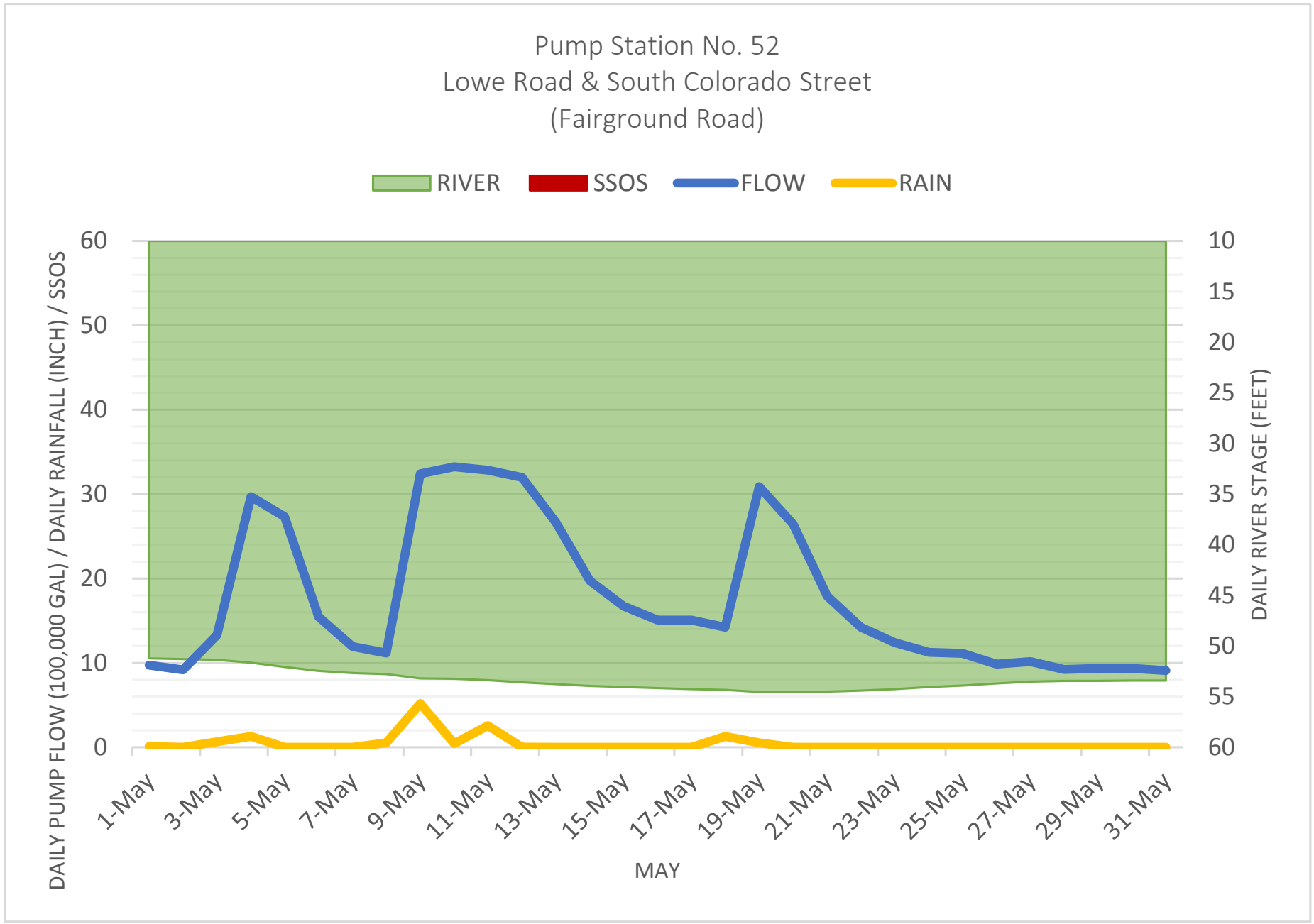
21-Apr
23-Apr
25-Apr
27-Apr
29-Apr
APRIL
NOTE: April 5th-28th; SCADA System offline


Pump Station No. 52
Lowe Road & South Colorado Street
(Fairground Road)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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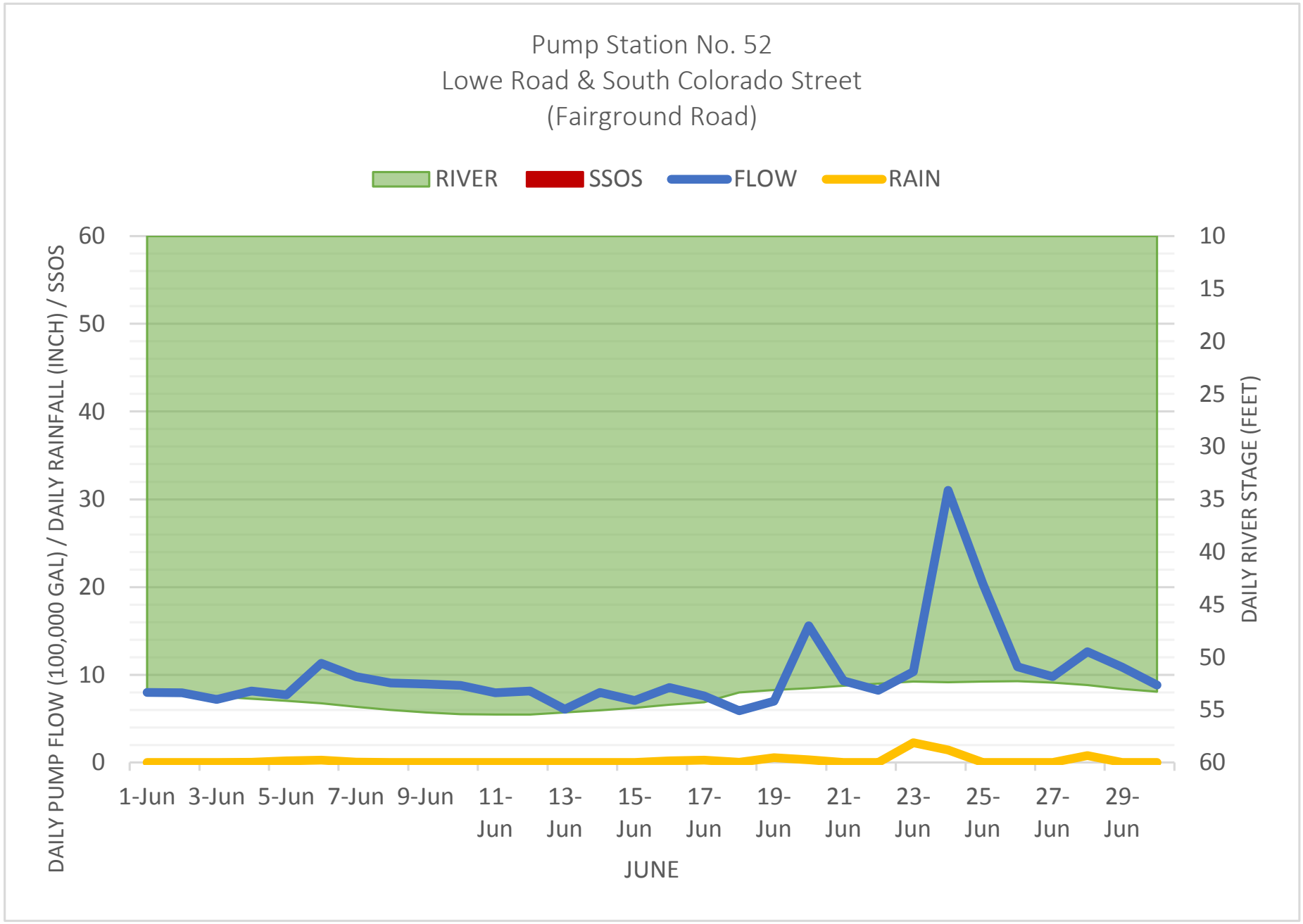
29-May
31-May
MAY


Pump Station No. 52
Lowe Road & South Colorado Street
(Fairground Road)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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1-Jun
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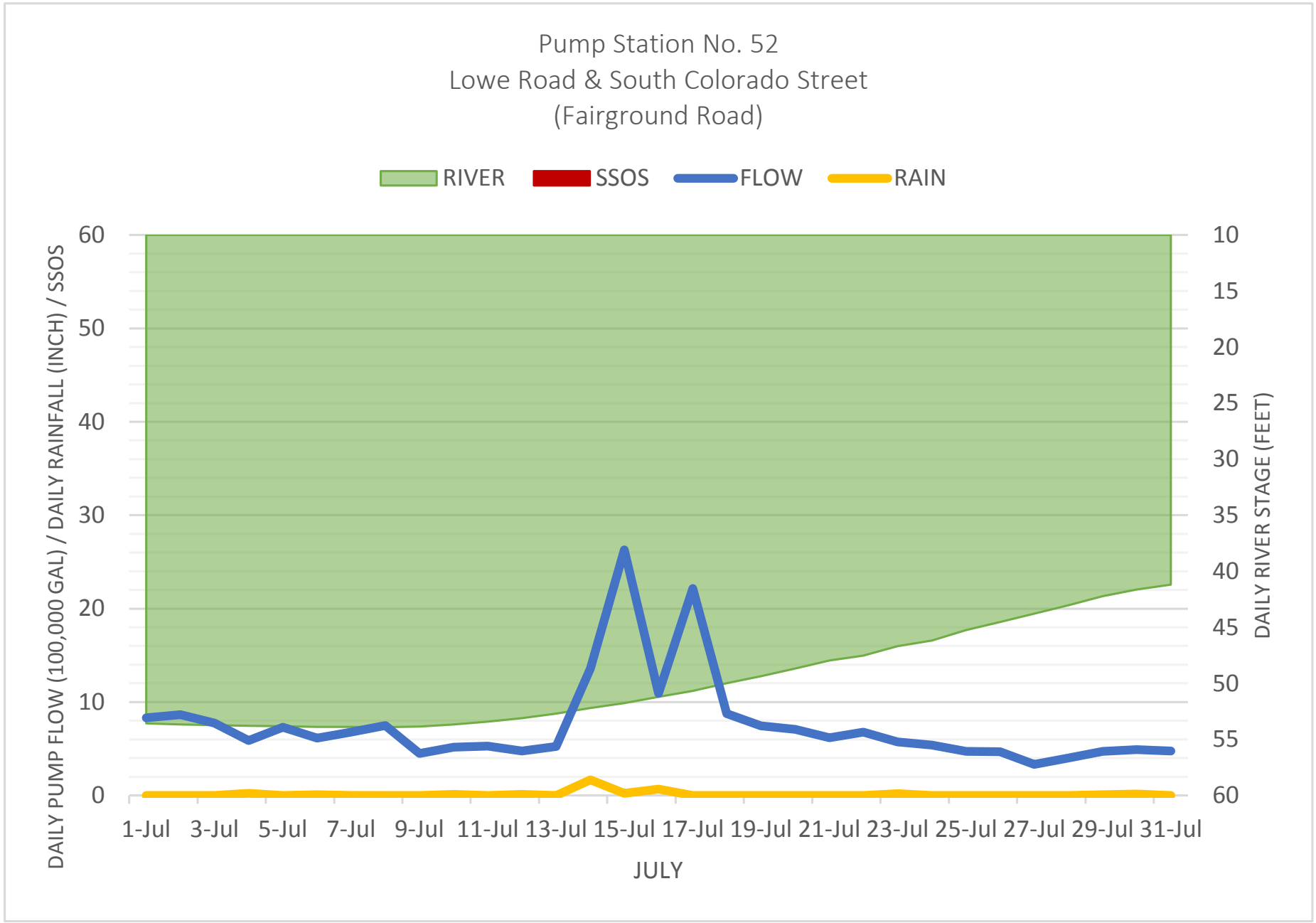
27-Jun
29-Jun
JUNE


Pump Station No. 52
Lowe Road & South Colorado Street
(Fairground Road)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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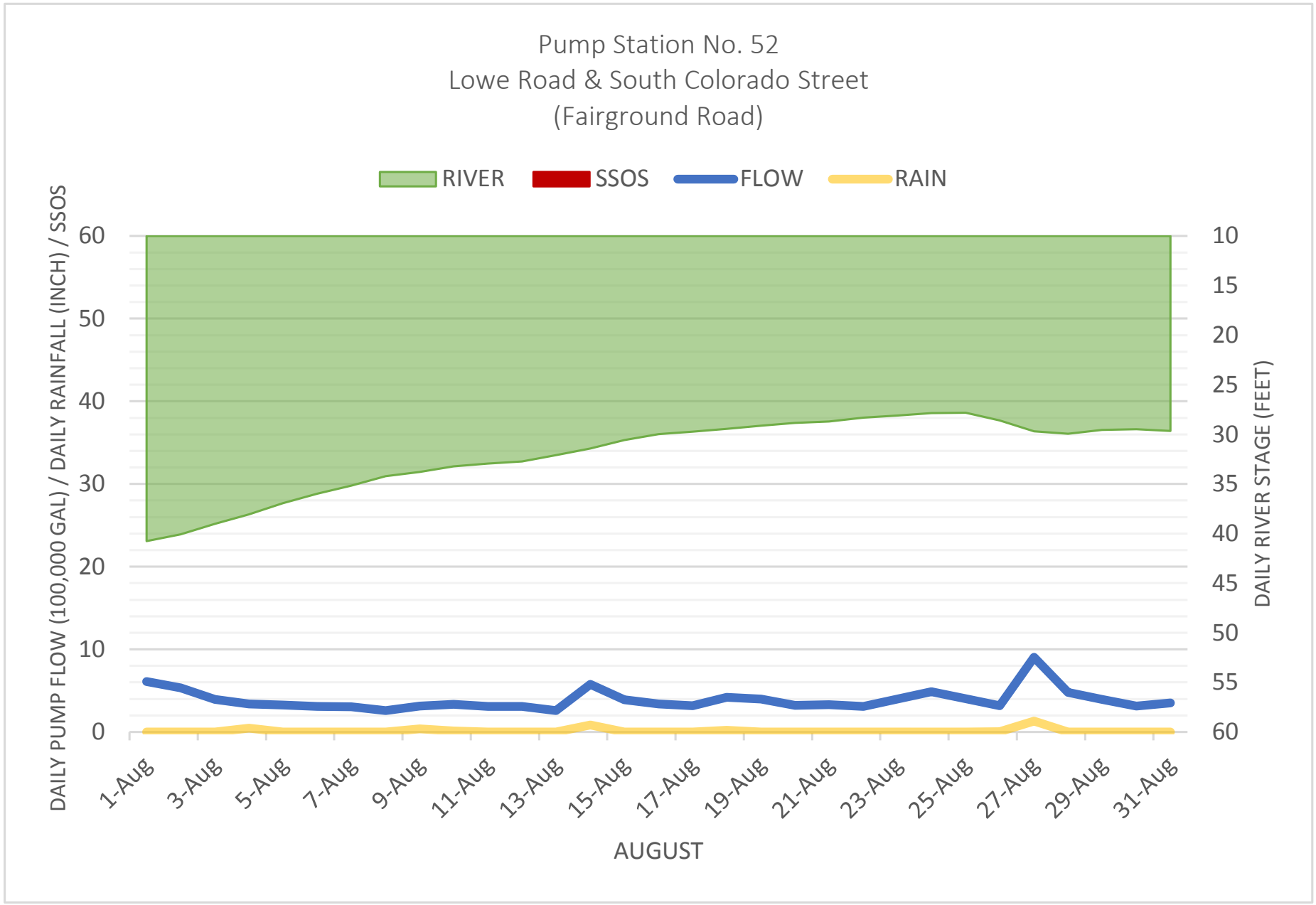
31-Jul
JULY


Pump Station No. 52
Lowe Road & South Colorado Street
(Fairground Road)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
60
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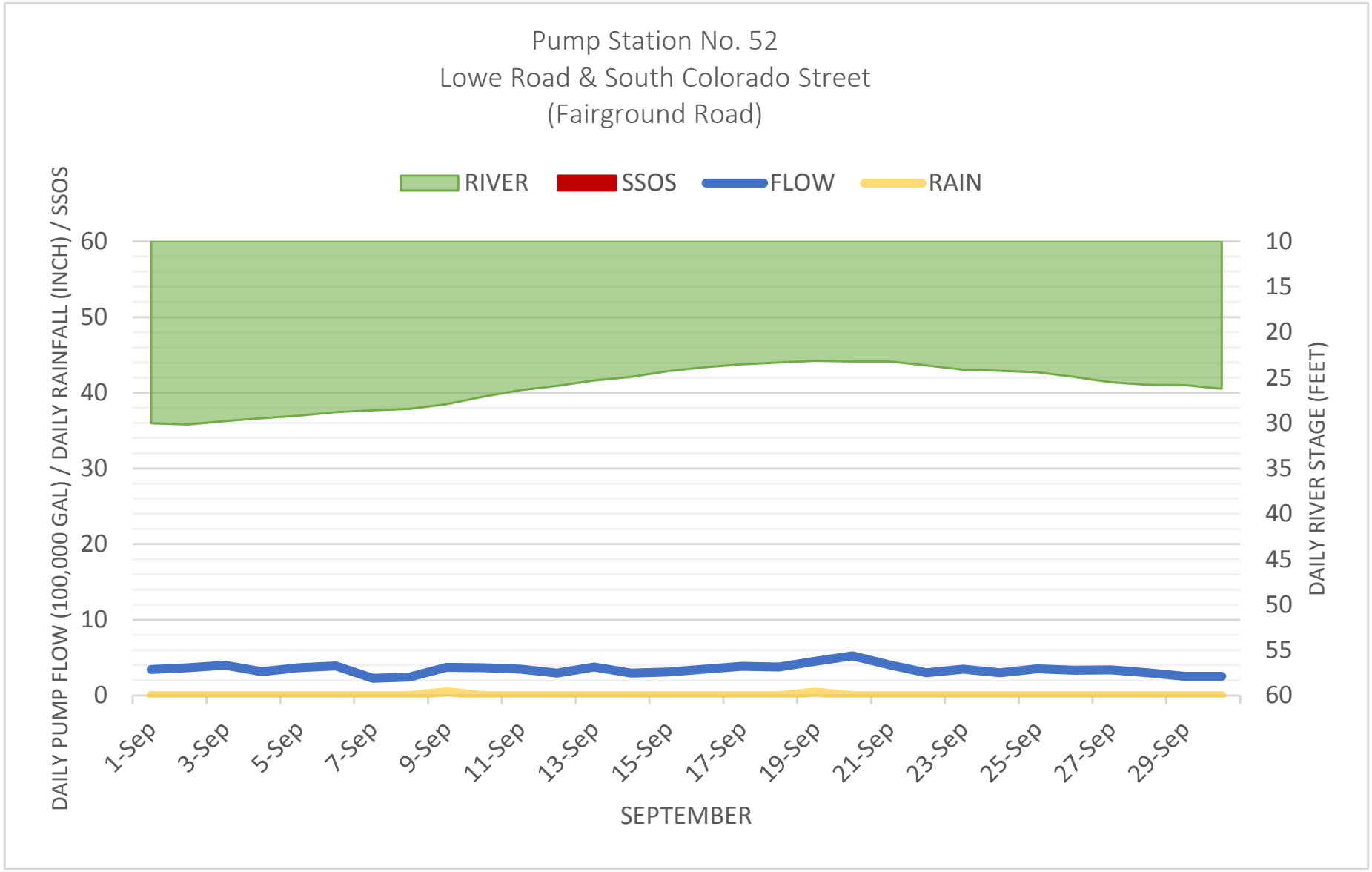
31-Aug
AUGUST


Pump Station No. 52
Lowe Road & South Colorado Street
(Fairground Road)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
60
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1-Sep
3-Sep
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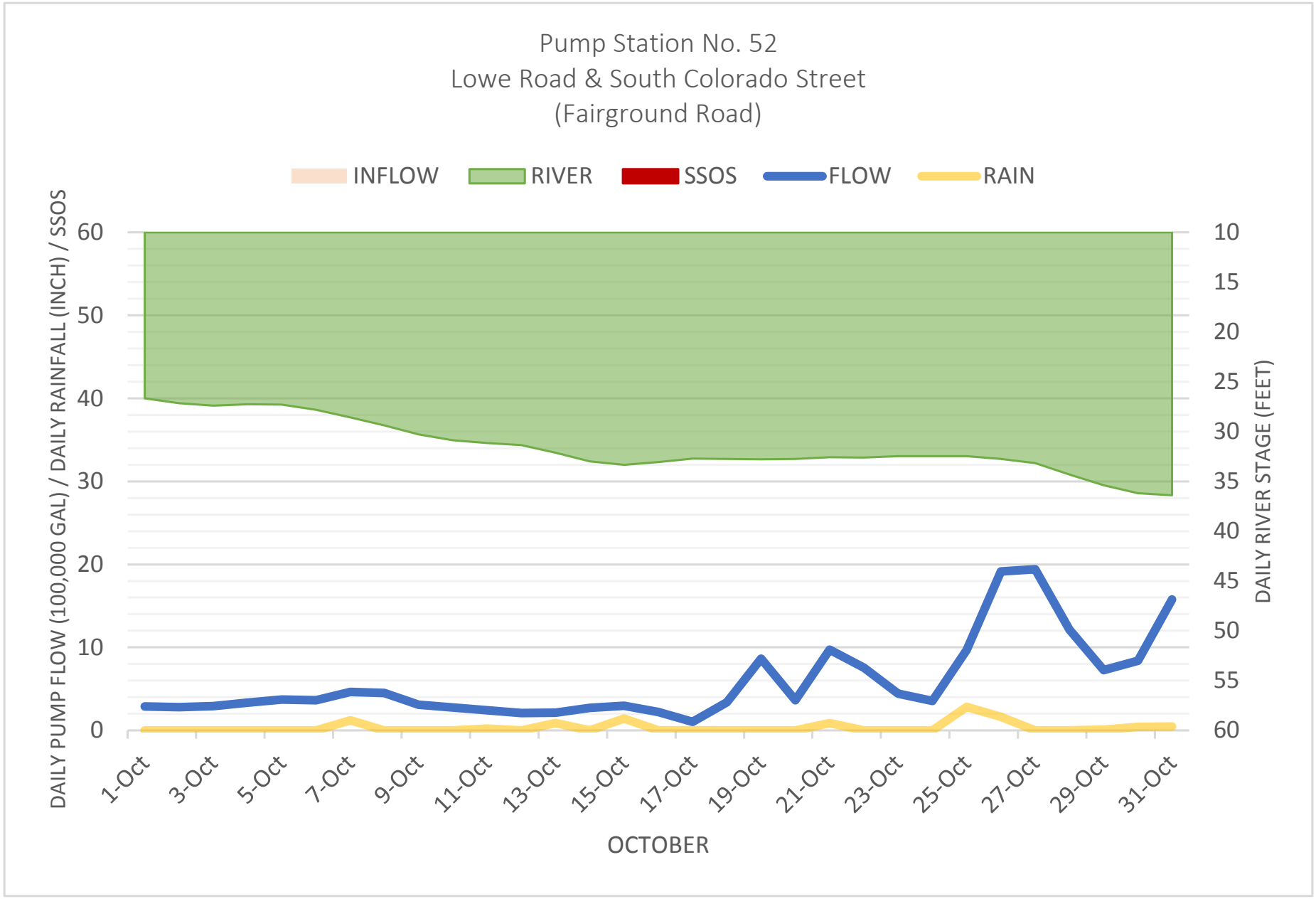
29-Sep
SEPTEMBER


Pump Station No. 52
Lowe Road & South Colorado Street
(Fairground Road)
INFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
60
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0
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25
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35
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45
50
55
60
1-Oct
3-Oct
5-Oct
7-Oct
9-Oct
11-Oct
13-Oct
15-Oct
17-Oct
19-Oct
21-Oct
23-Oct
25-Oct
27-Oct
29-Oct
31-Oct
OCTOBER

APPENDIX 49

MS29-A/PS57 I/I WORKSHEET

MS29-A/PS57
INFLOW & INFILTRATION WORKSHEET

Infiltration

	feet	miles	diameter	inch-miles	
15" Gravity	0	0.00	15.00	0	
10" Gravity	3018	0.57	10.00	5.715909	
8" Gravity	3416	0.65	8	5.175758	
laterals	900	0.17	4	0.681818	
				11.57348	**total inch-miles in system**

maximum average infiltration	inch-miles		
7,428.5714	11.57	**641.8612**	**total gpd/idm**

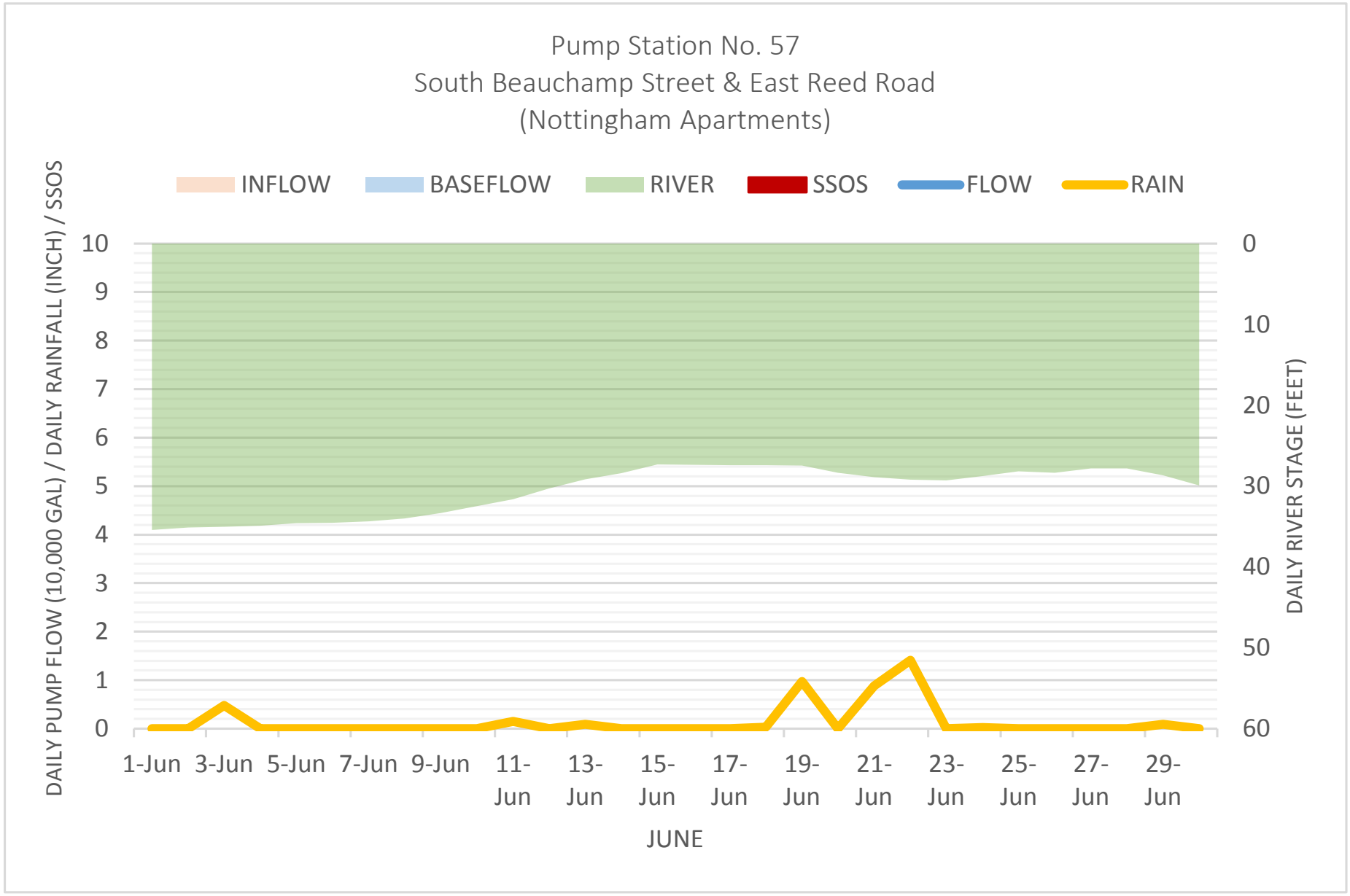
Inflow

	feet	miles	diameter	inch-miles	
15" Gravity	0	0.00	15.00	0	
10" Gravity	3018	0.57	10.00	5.715909	
8" Gravity	3416	0.65	8.00	5.175758	
laterals	900	0.17	4.00	0.681818	
TOTAL PIPE	7334				
				11.57348	**total inch-miles in system**

maximum average inflow	inch-miles		
28,214.2857	11.57	**2437.838**	**total gpd/idm**

APPENDIX 50

MS29-A/PS57 GRAPHS


Pump Station No. 57
South Beauchamp Street & East Reed Road
(Nottingham Apartments)
INFLOW
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
10
9
8
7
6
5
4
3
2
1
0
0
10
20
30
40
50
60
1-Jun
3-Jun
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7-Jun
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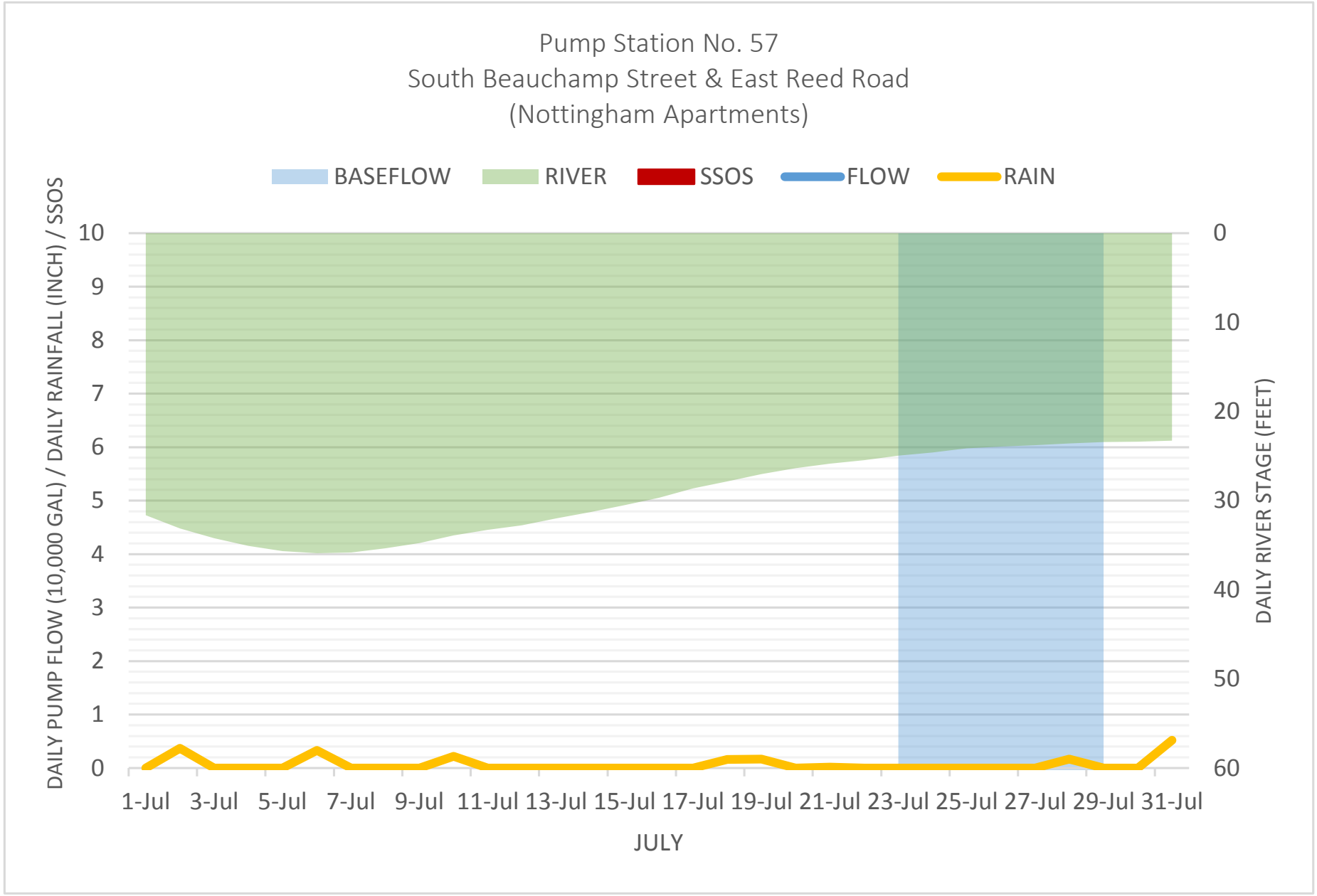
27-Jun
29-Jun
JUNE


Pump Station No. 57
South Beauchamp Street & East Reed Road
(Nottingham Apartments)
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
10
9
8
7
6
5
4
3
2
1
0
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1-Jul
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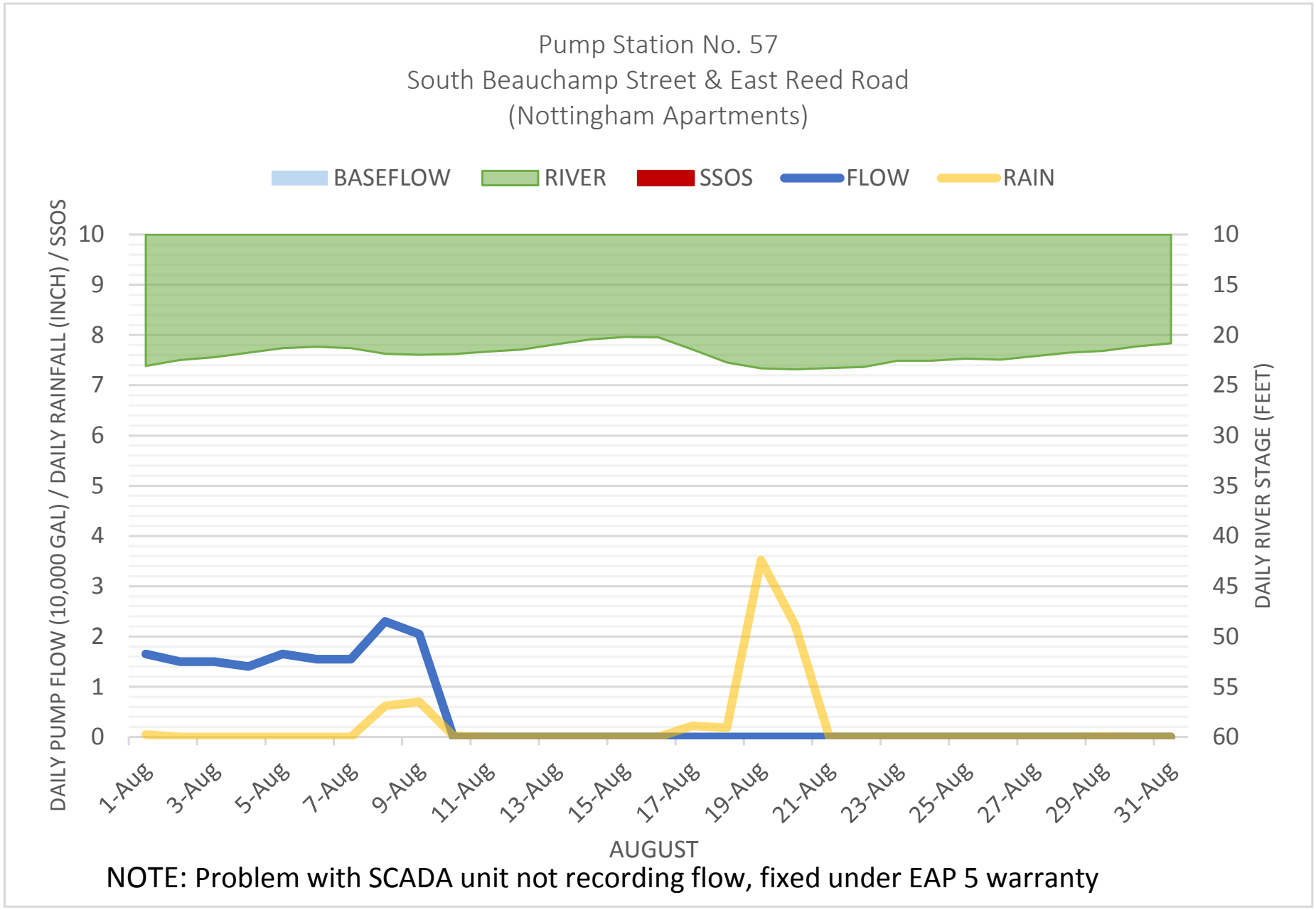
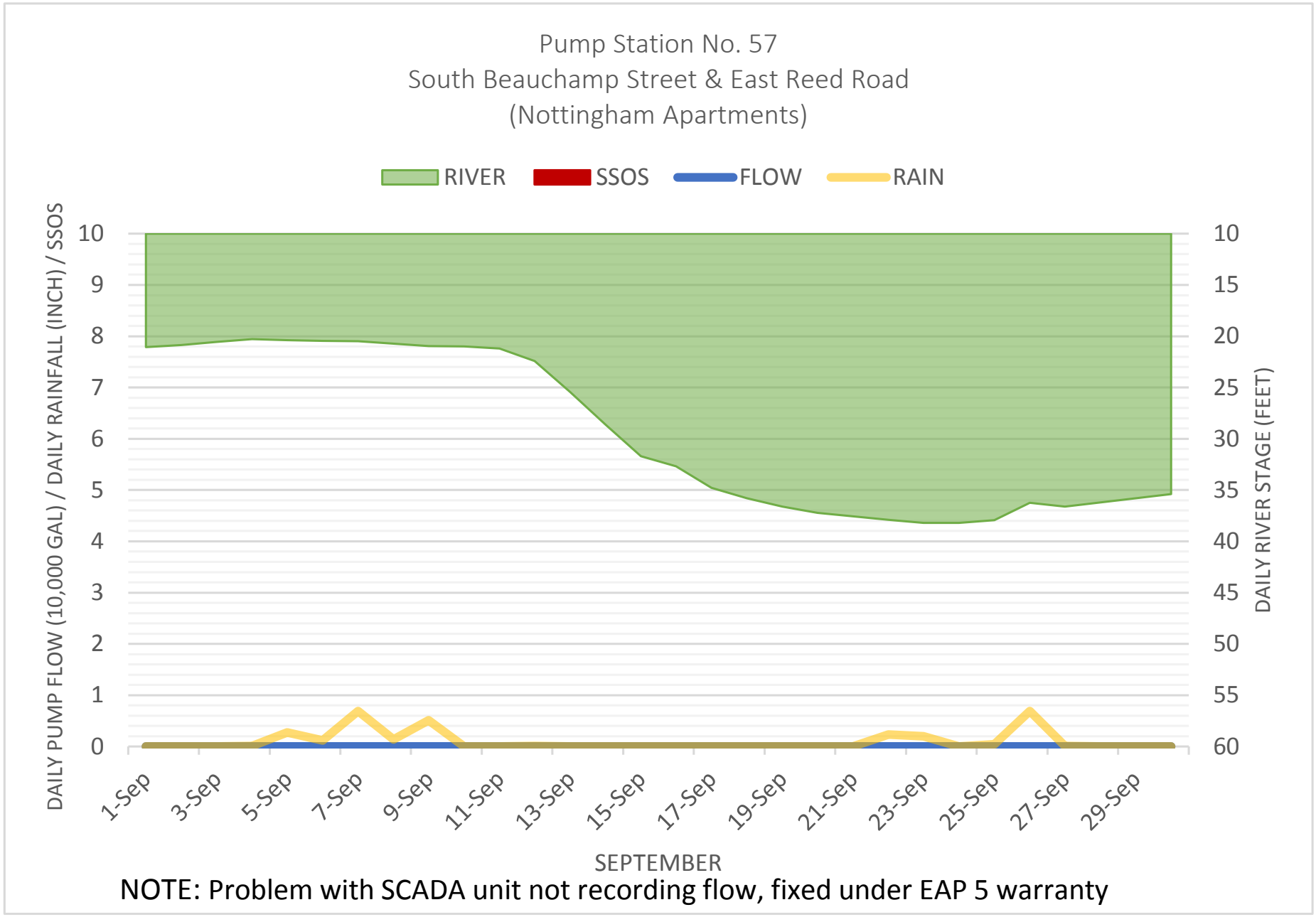
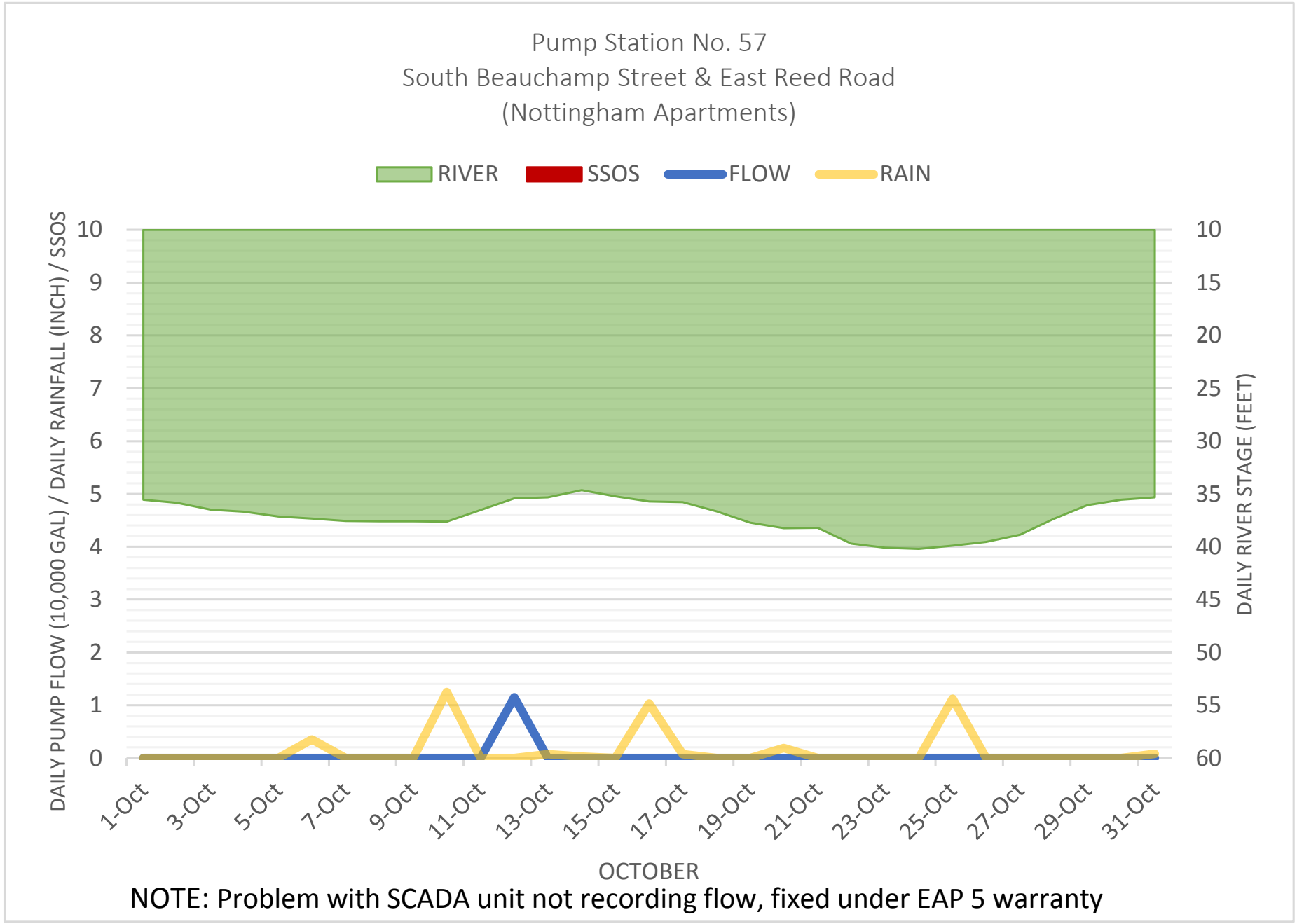
31-Jul
JULY



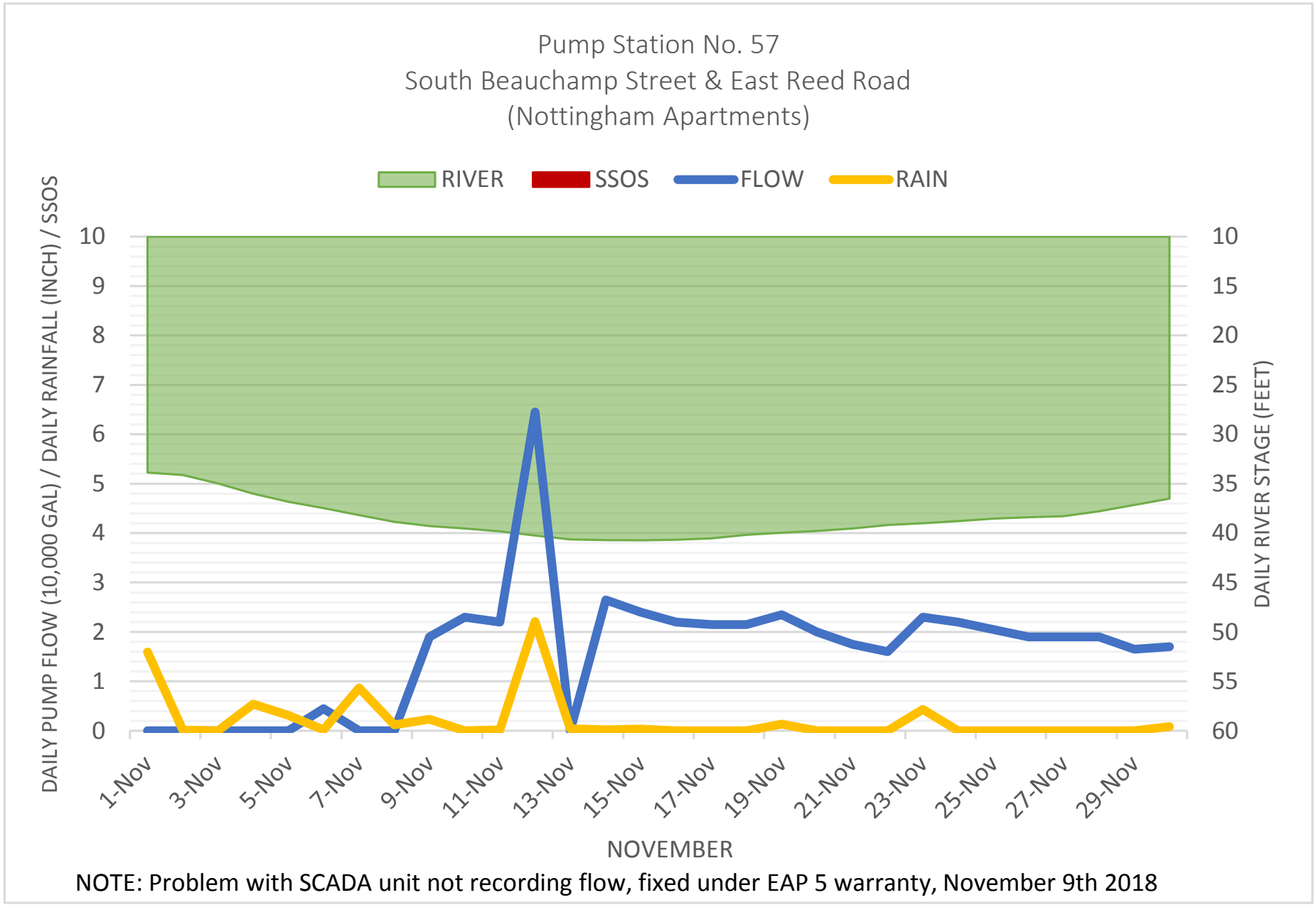
NOTE: Problem with SCADA unit not recording flow, fixed under EAP 5 warranty



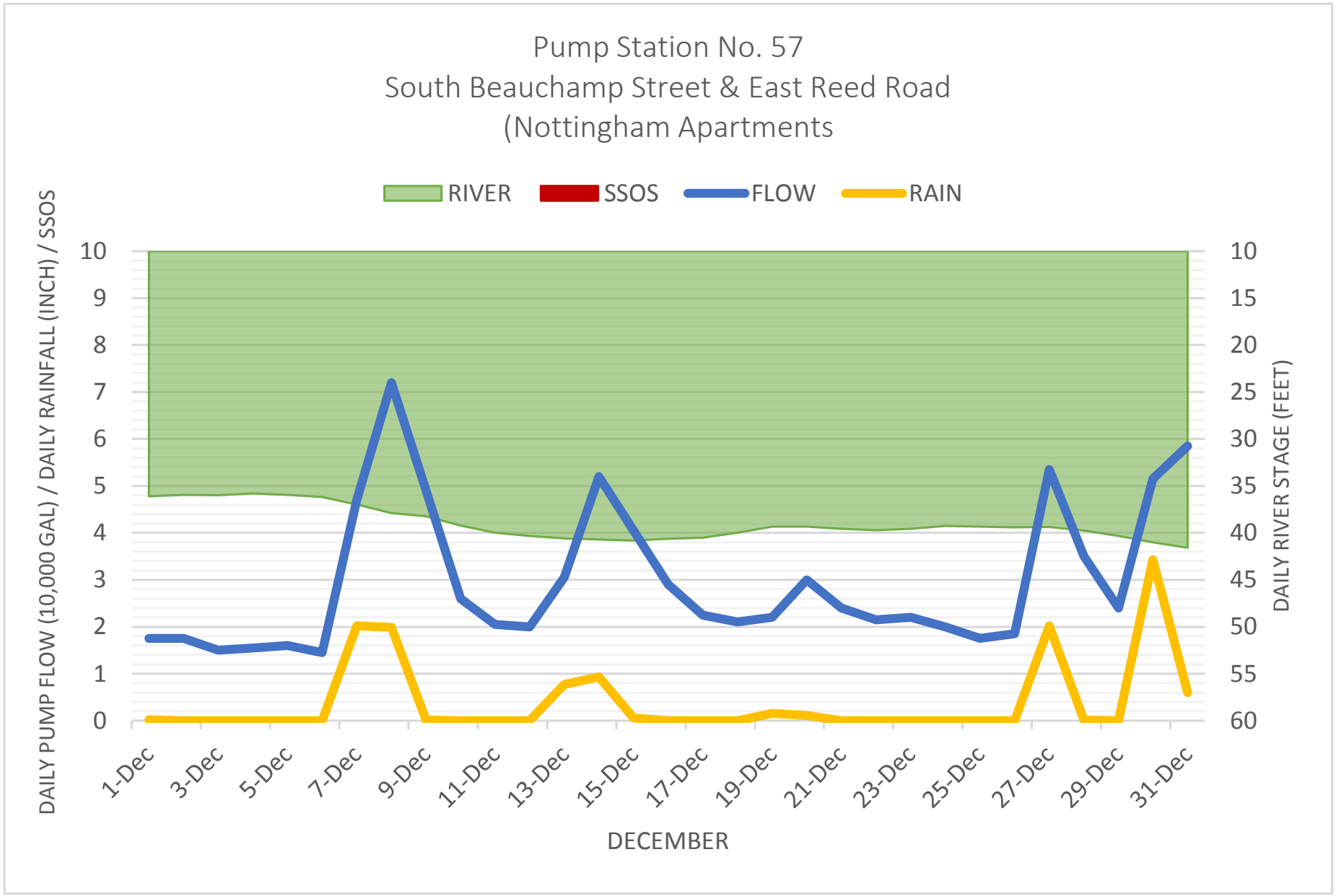
NOTE: Problem with SCADA unit not recording flow, fixed under EAP 5 warranty



NOTE: Problem with SCADA unit not recording flow, fixed under EAP 5 warranty



NOTE: Problem with SCADA unit not recording flow, fixed under EAP 5 warranty, November 9th 2018


Pump Station No. 57
South Beauchamp Street & East Reed Road
(Nottingham Apartments
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
10
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7-Dec
9-Dec
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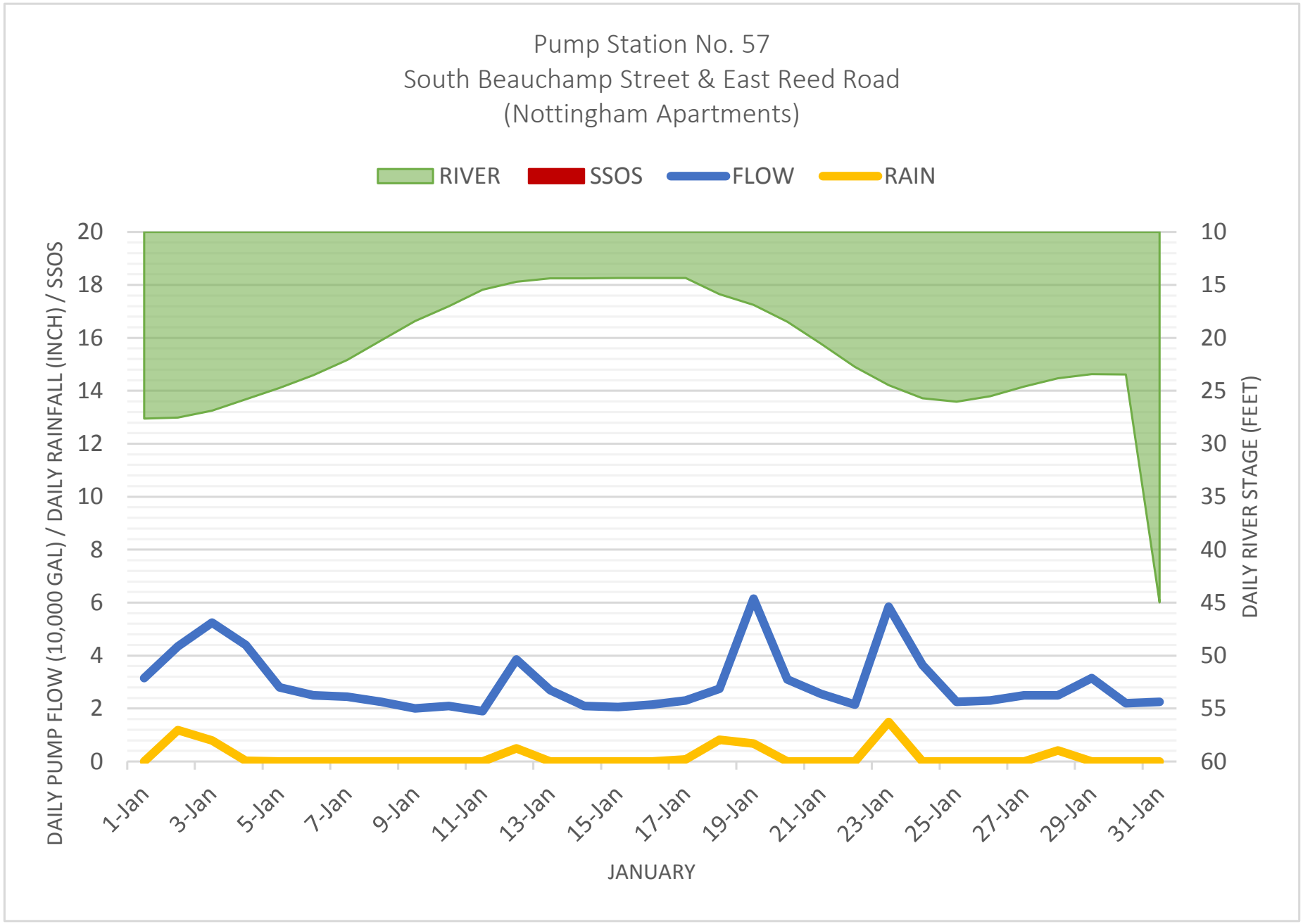
27-Dec
29-Dec
31-Dec
DECEMBER


Pump Station No. 57
South Beauchamp Street & East Reed Road
(Nottingham Apartments)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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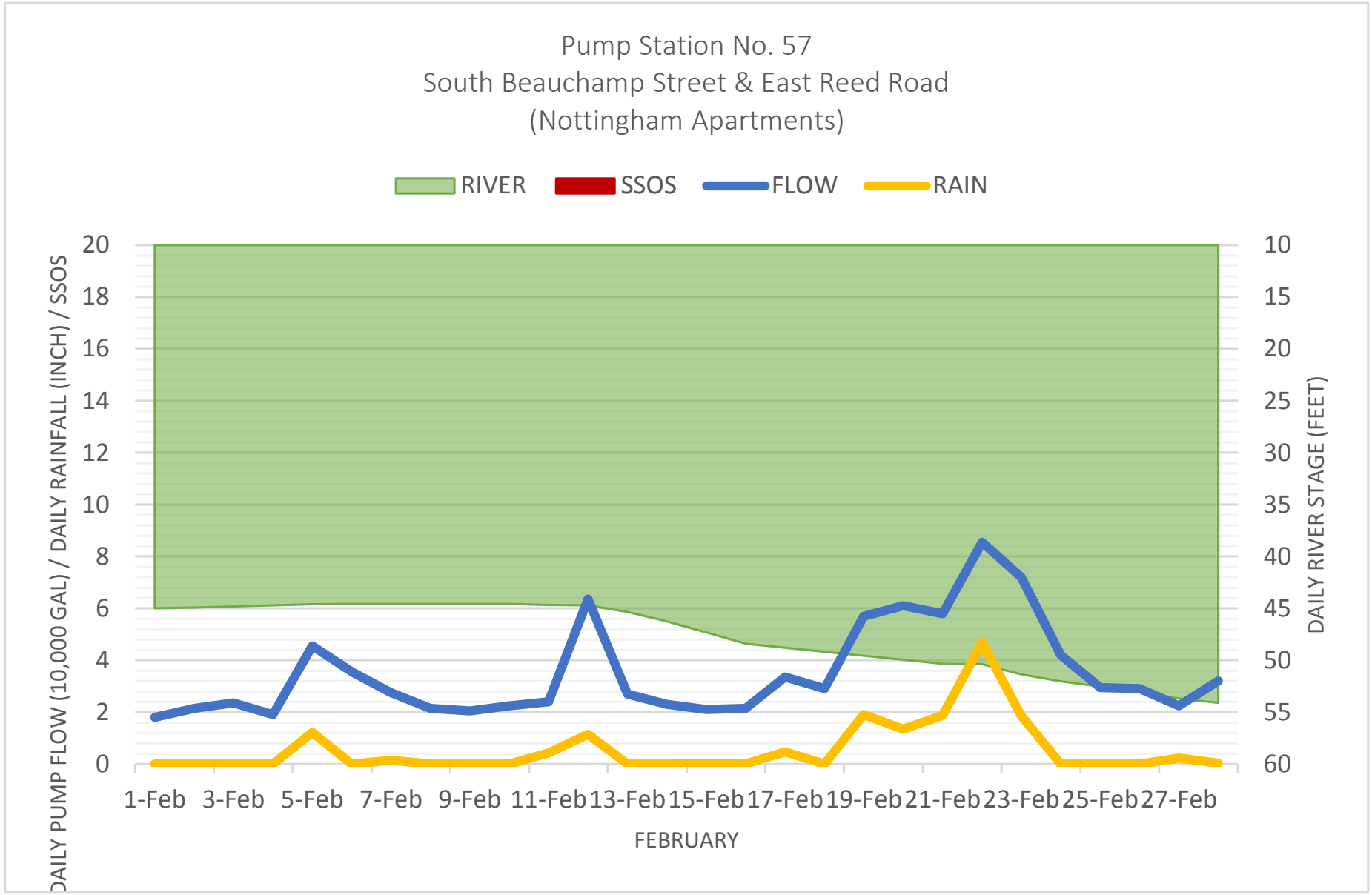
31-Jan
JANUARY


Pump Station No. 57
South Beauchamp Street & East Reed Road
(Nottingham Apartments)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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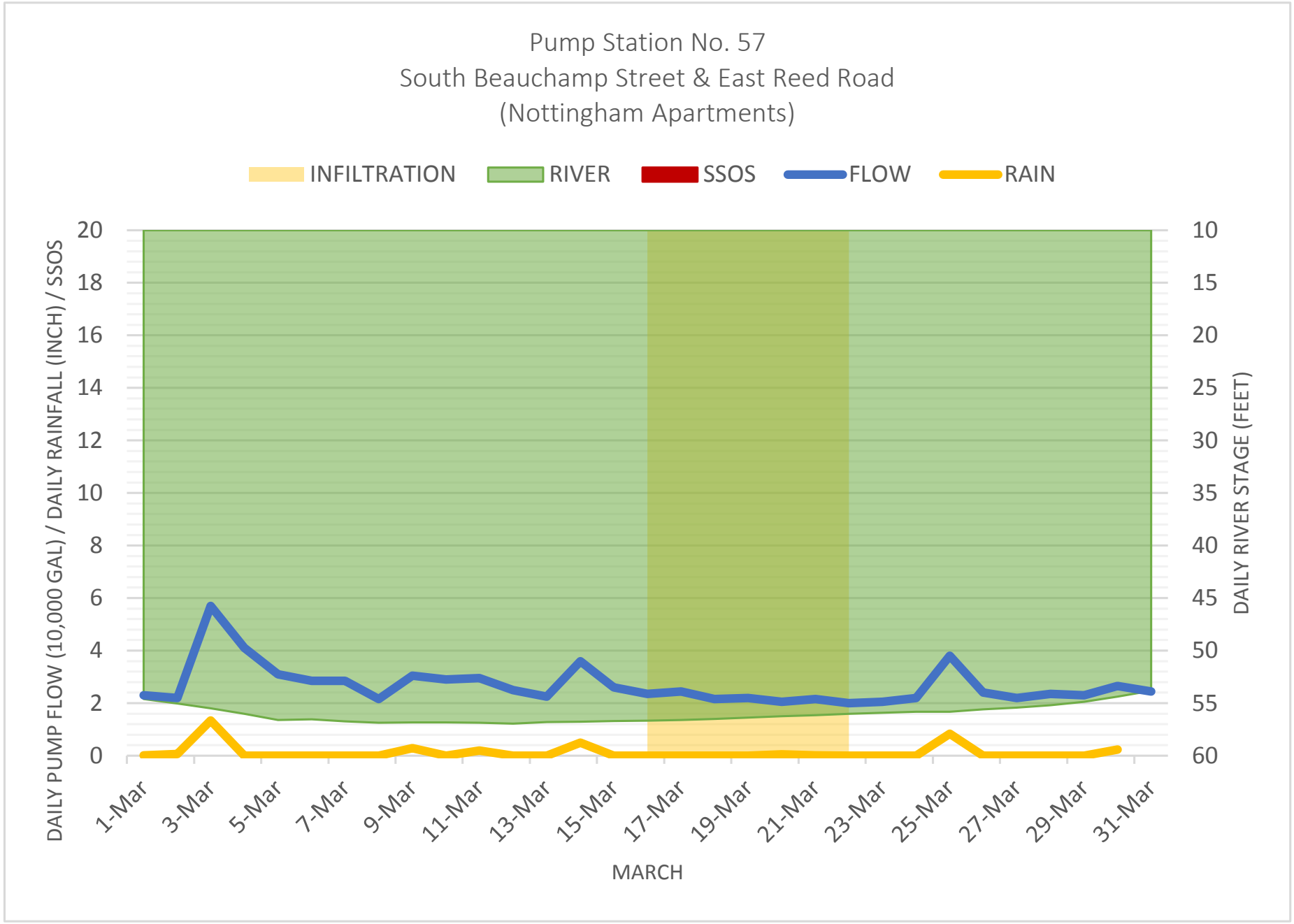
27-Feb
FEBRUARY


Pump Station No. 57
South Beauchamp Street & East Reed Road
(Nottingham Apartments)
INFILTRATION
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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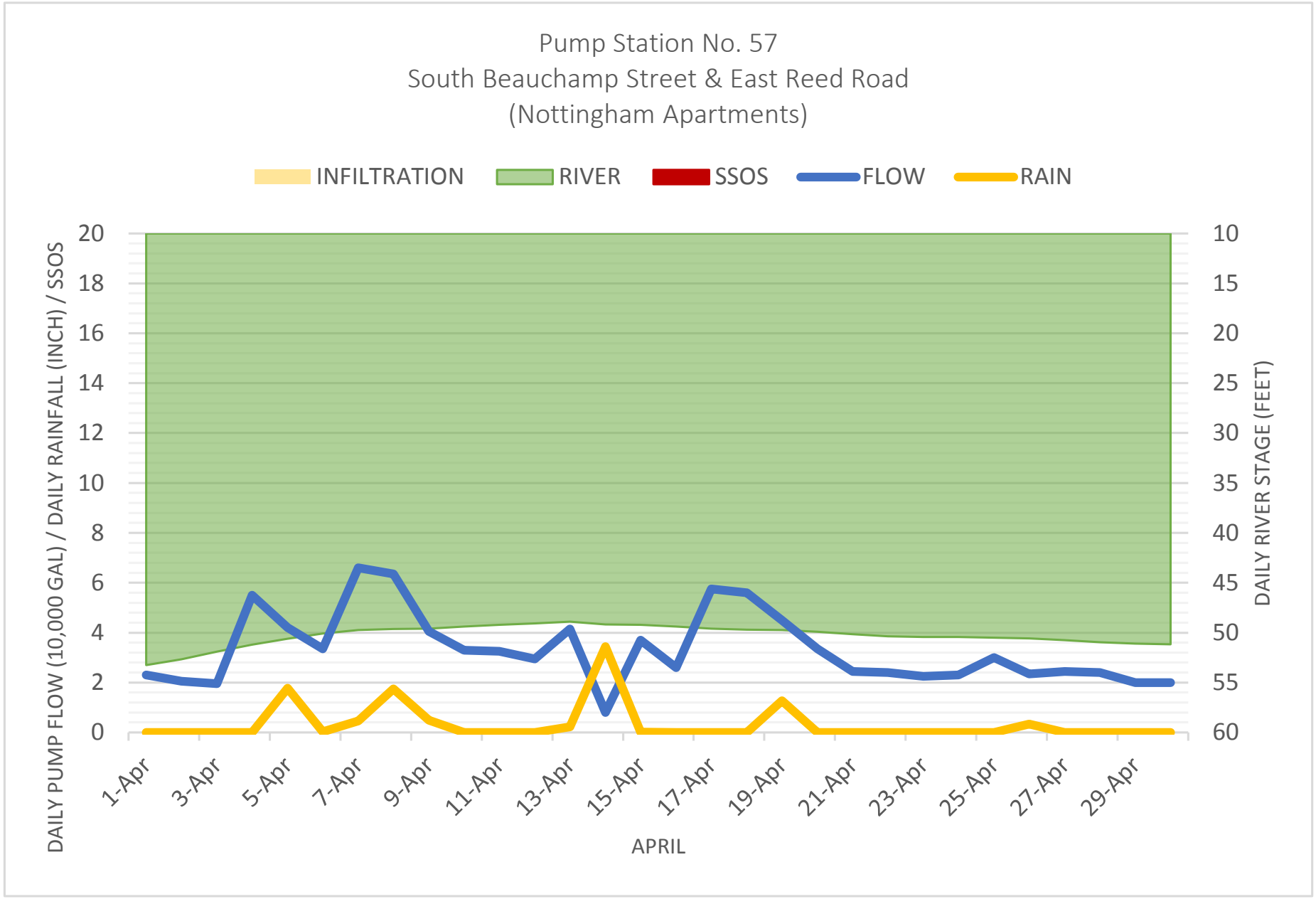
MARCH


Pump Station No. 57
South Beauchamp Street & East Reed Road
(Nottingham Apartments)
INFILTRATION
RIVER
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FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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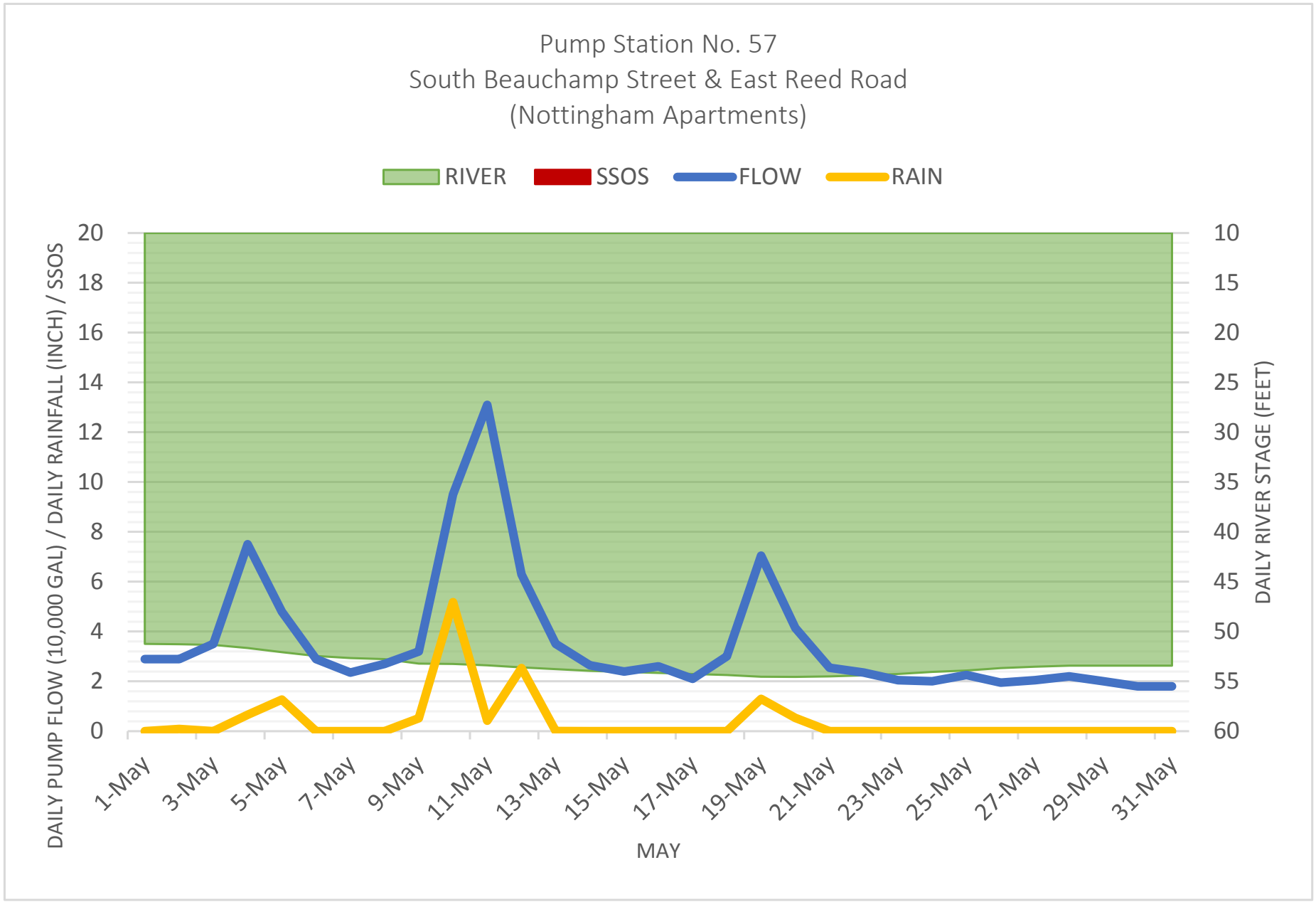
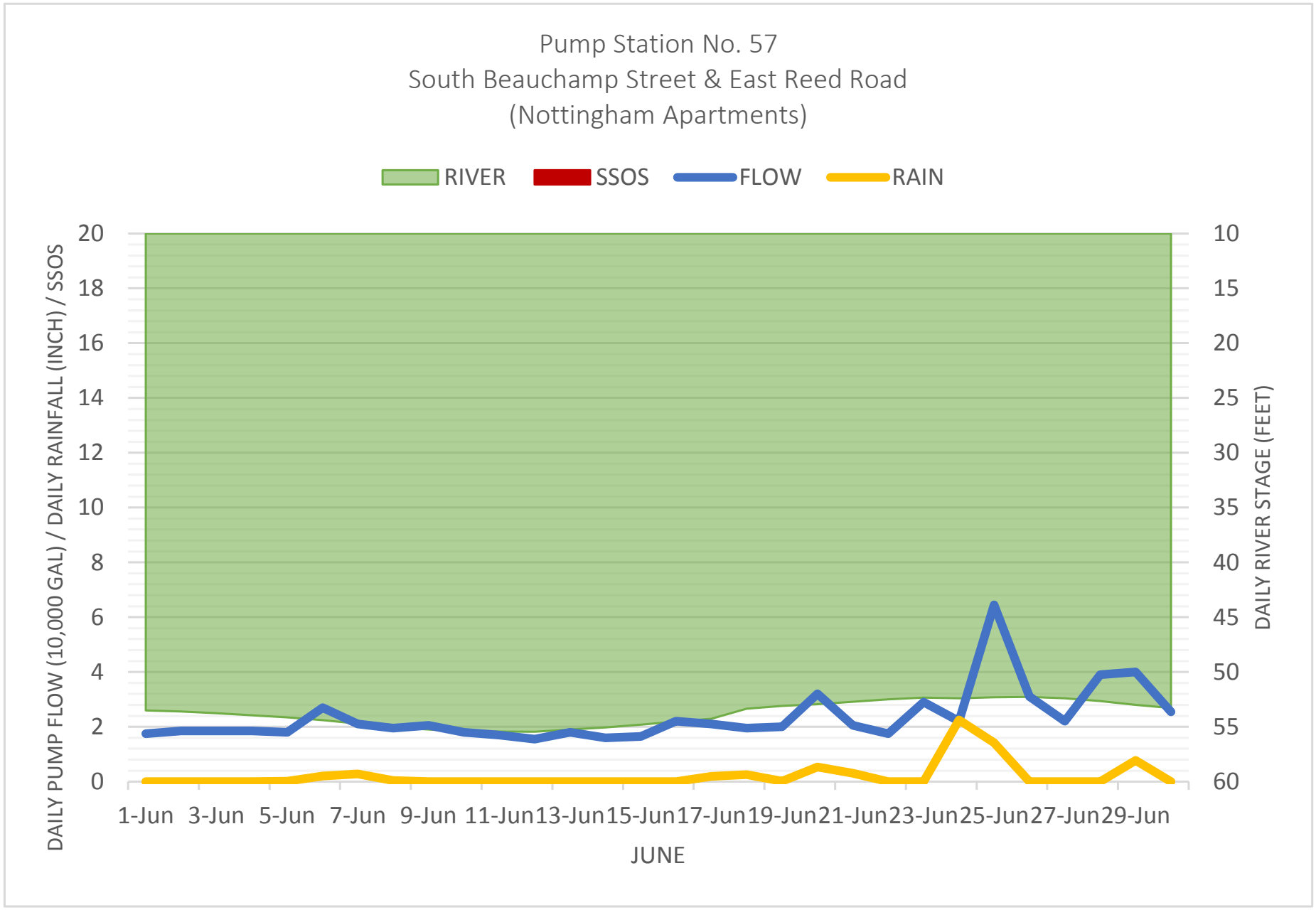
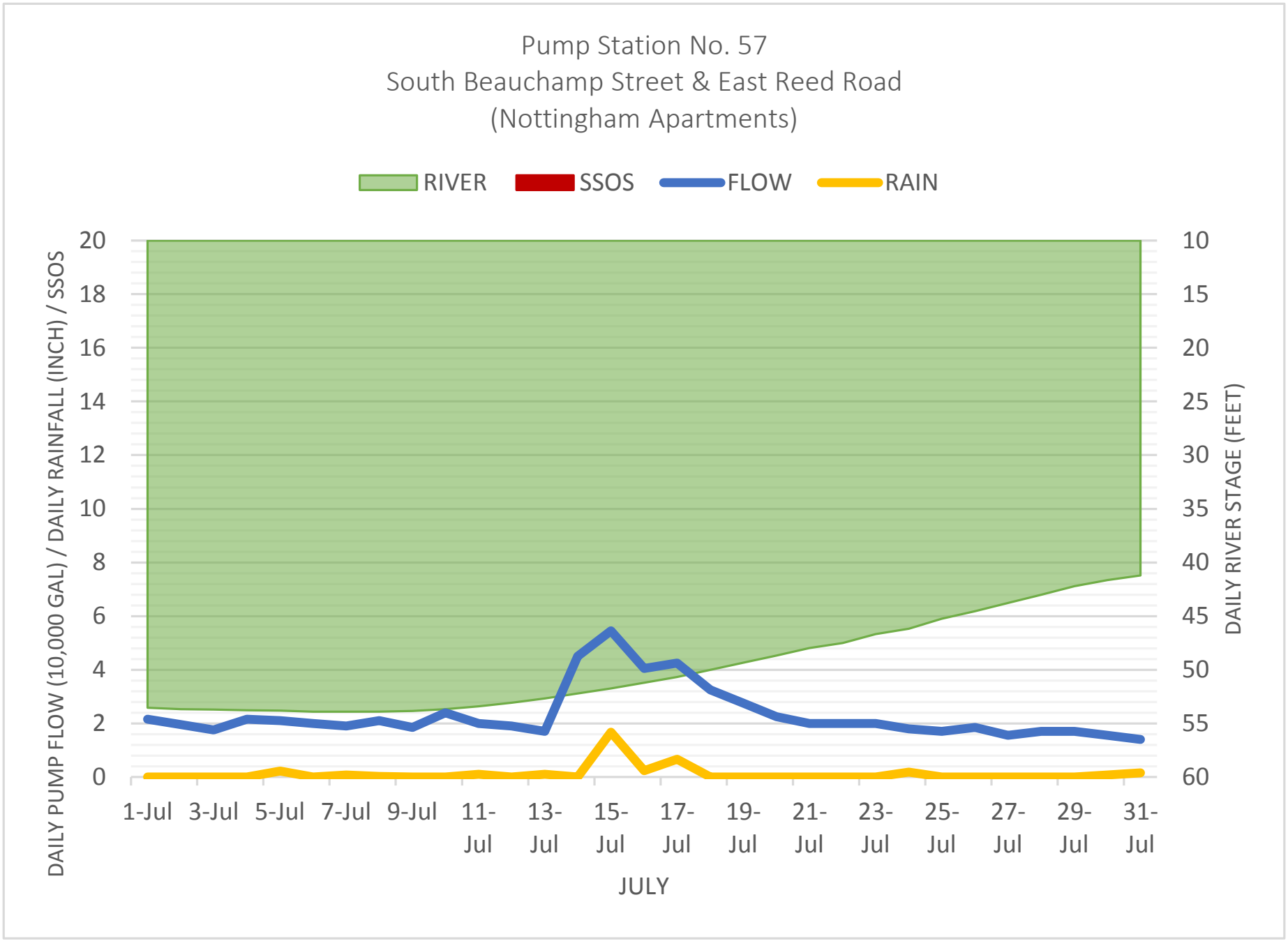
21-Apr
23-Apr
25-Apr
27-Apr
29-Apr
APRIL


Pump Station No. 57
South Beauchamp Street & East Reed Road
(Nottingham Apartments)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
0
2
4
6
8
10
12
14
16
18
20
10
15
20
25
30
35
40
45
50
55
60
1-May
3-May
5-May
7-May
9-May
11-May
13-May
15-May
17-May
19-May
21-May
23-May
25-May
27-May
29-May
31-May
MAY


Pump Station No. 57
South Beauchamp Street & East Reed Road
(Nottingham Apartments)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
20
18
16
14
12
10
8
6
4
2
0
10
15
20
25
30
35
40
45
50
55
60
1-Jun
3-Jun
5-Jun
7-Jun
9-Jun
11-Jun
13-Jun
15-Jun
17-Jun
19-Jun
21-Jun
23-Jun
25-Jun
27-Jun
29-Jun
JUNE


Pump Station No. 57
South Beauchamp Street & East Reed Road
(Nottingham Apartments)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
20
18
16
14
12
10
8
6
4
2
0
10
15
20
25
30
35
40
45
50
55
60
1-Jul
3-Jul
5-Jul
7-Jul
9-Jul
11-Jul
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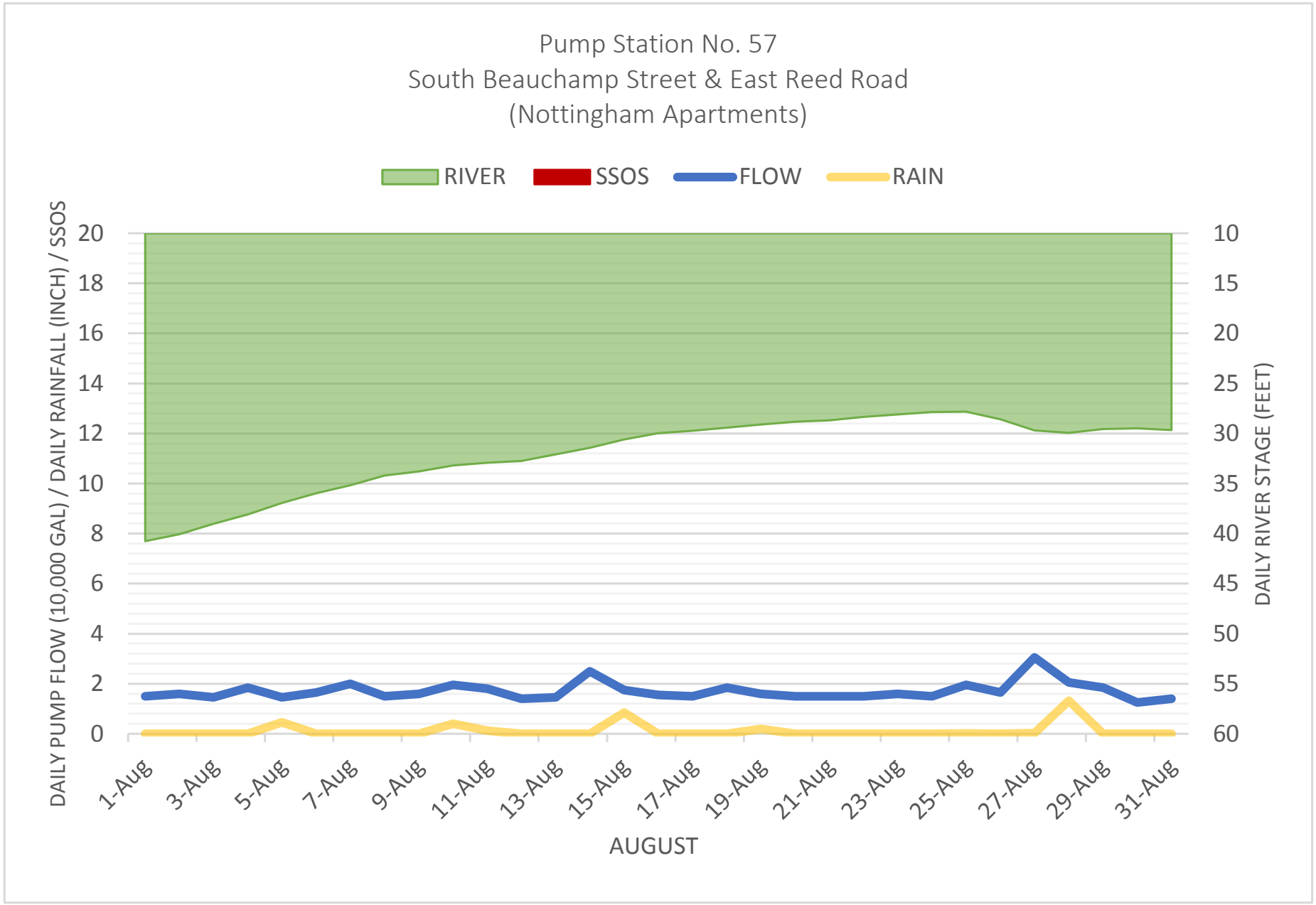
19-Jul
21-Jul
23-Jul
25-Jul
27-Jul
29-Jul
31-Jul
JULY


Pump Station No. 57
South Beauchamp Street & East Reed Road
(Nottingham Apartments)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
20
18
16
14
12
10
8
6
4
2
0
10
15
20
25
30
35
40
45
50
55
60
1-Aug
3-Aug
5-Aug
7-Aug
9-Aug
11-Aug
13-Aug
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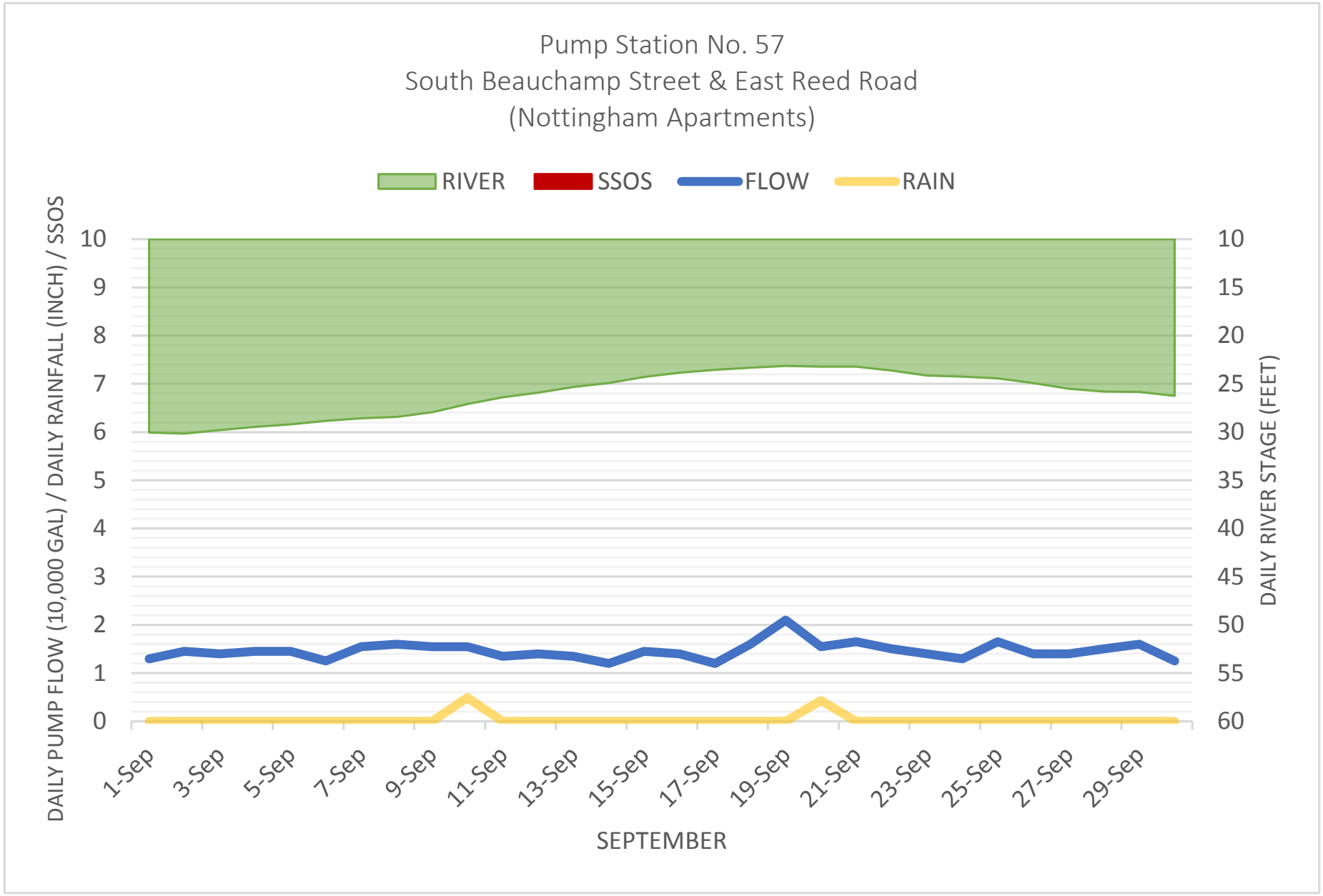
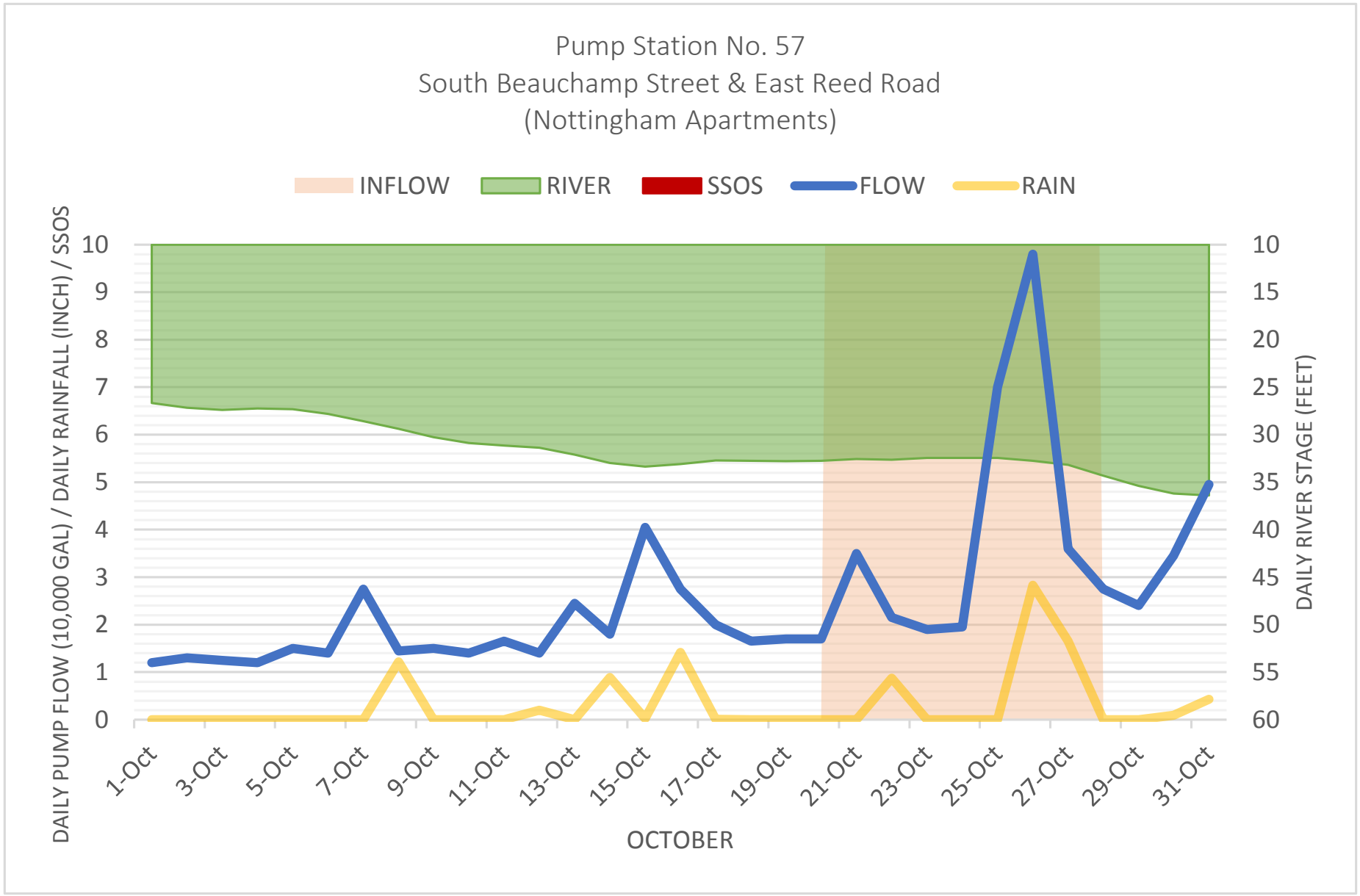
17-Aug
19-Aug
21-Aug
23-Aug
25-Aug
27-Aug
29-Aug
31-Aug
AUGUST


Pump Station No. 57
South Beauchamp Street & East Reed Road
(Nottingham Apartments)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
10
9
8
7
6
5
4
3
2
1
0
10
15
20
25
30
35
40
45
50
55
60
1-Sep
3-Sep
5-Sep
7-Sep
9-Sep
11-Sep
13-Sep
15-Sep
17-Sep
19-Sep
21-Sep
23-Sep
25-Sep
27-Sep
29-Sep
SEPTEMBER


Pump Station No. 57
South Beauchamp Street & East Reed Road
(Nottingham Apartments)
INFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
0
1
2
3
4
5
6
7
8
9
10
60
55
50
45
40
35
30
25
20
15
10
1-Oct
3-Oct
5-Oct
7-Oct
9-Oct
11-Oct
13-Oct
15-Oct
17-Oct
19-Oct
21-Oct
23-Oct
25-Oct
27-Oct
29-Oct
31-Oct
OCTOBER

APPENDIX 51

MS29-B/PS26 I/I WORKSHEET

MS29-B/PS26
INFLOW & INFILTRATION WORKSHEET

Infiltration

	feet	miles	diameter	inch-miles	
15" Gravity	2449	0.46	15.00	6.957386	
10" Gravity	1456	0.28	10.00	2.757576	
8" Gravity	2468	0.47	8	3.739394	
laterals	2500	0.47	4	1.893939	
				15.3483	**total inch-miles in system**

maximum average infiltration	inch-miles		
9,500.0000	15.35	**618.9612**	**total gpd/idm**

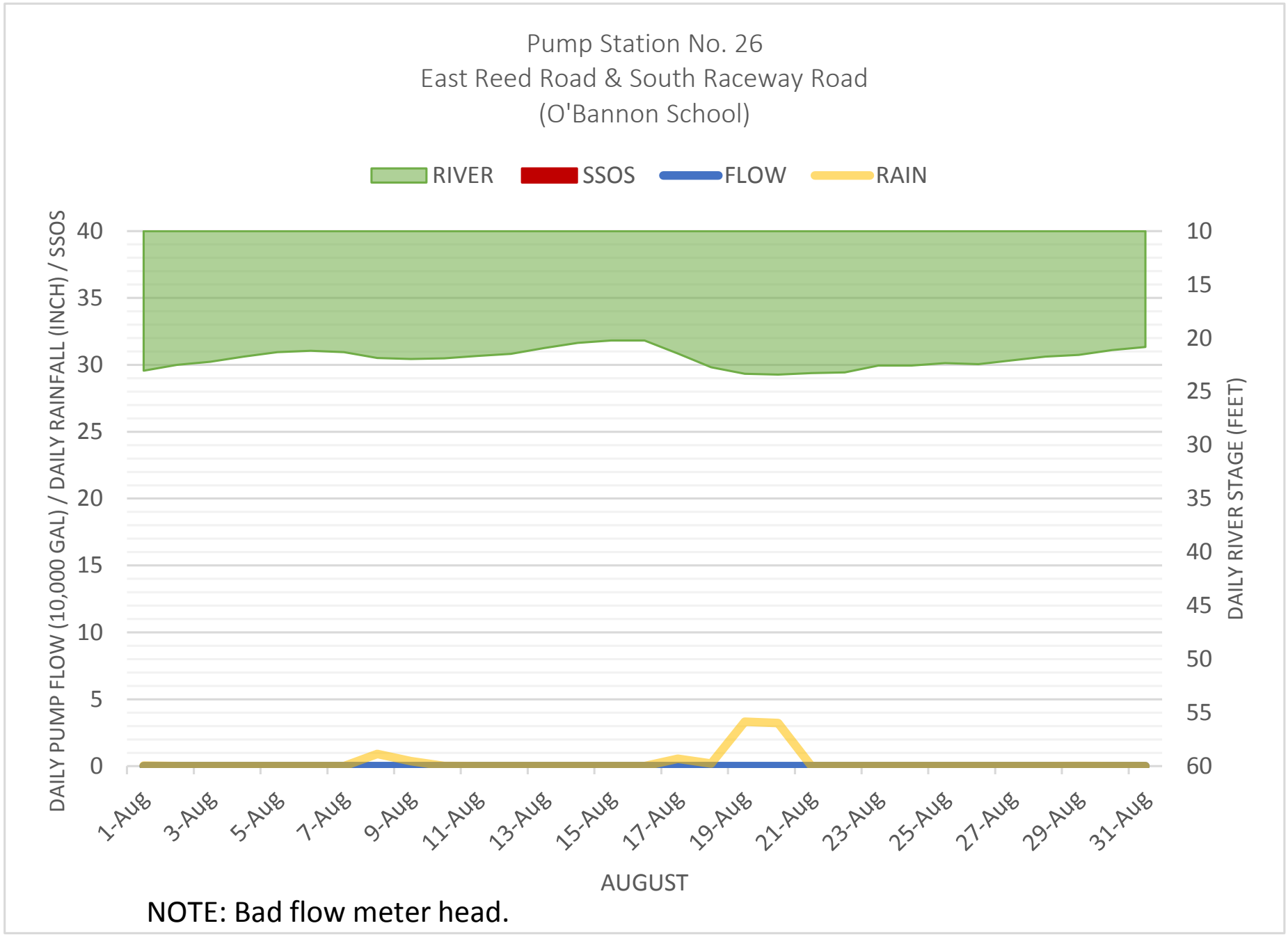
Inflow

	feet	miles	diameter	inch-miles	
15" Gravity	2449	0.46	15.00	6.957386	
10" Gravity	1456	0.28	10.00	2.757576	
8" Gravity	2468	0.47	8.00	3.739394	
laterals	2500	0.47	4.00	1.893939	
TOTAL PIPE	8873				
				15.3483	**total inch-miles in system**

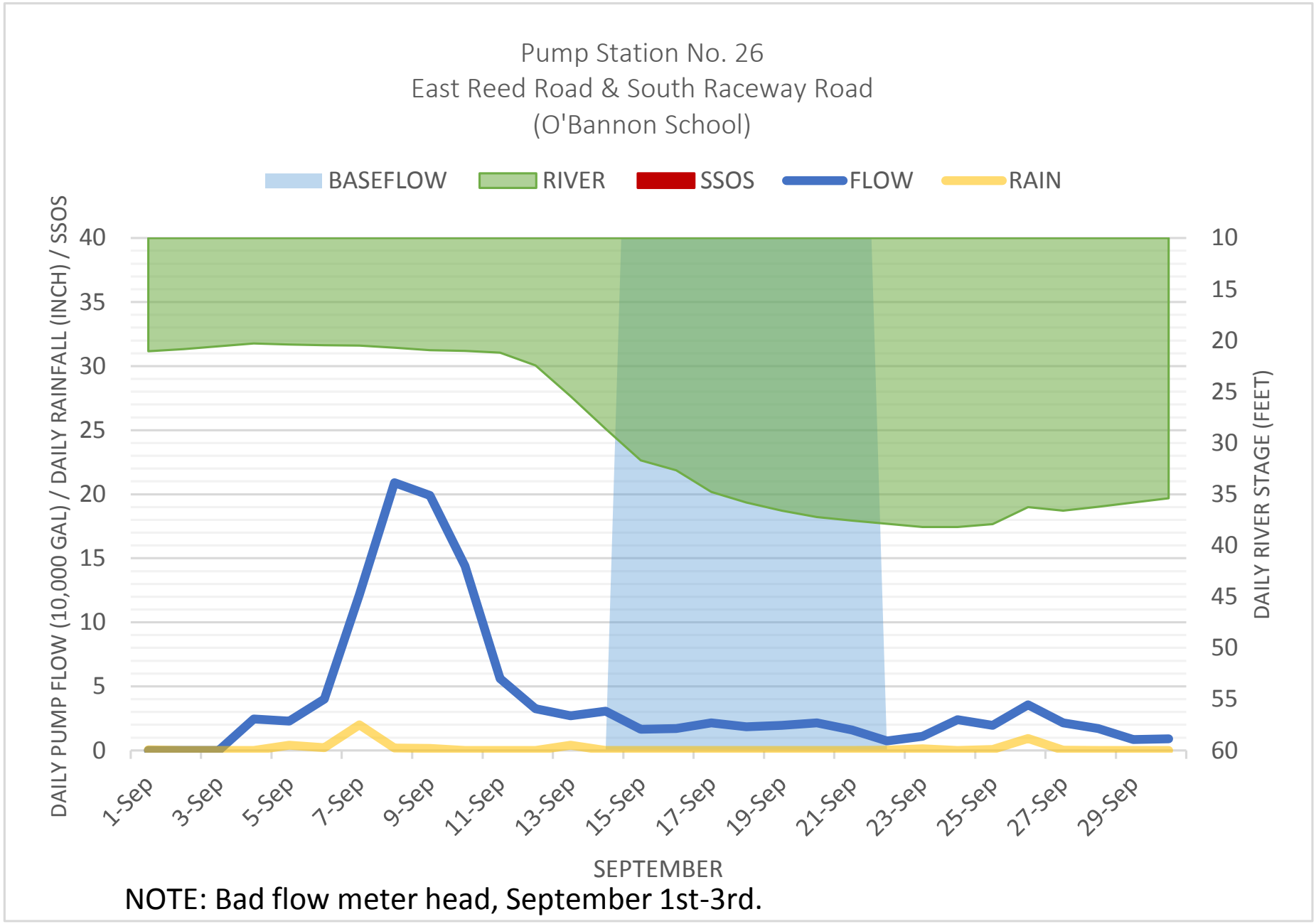
maximum average inflow	inch-miles		
119,071.4286	15.35	**7757.958**	**total gpd/idm**

APPENDIX 52

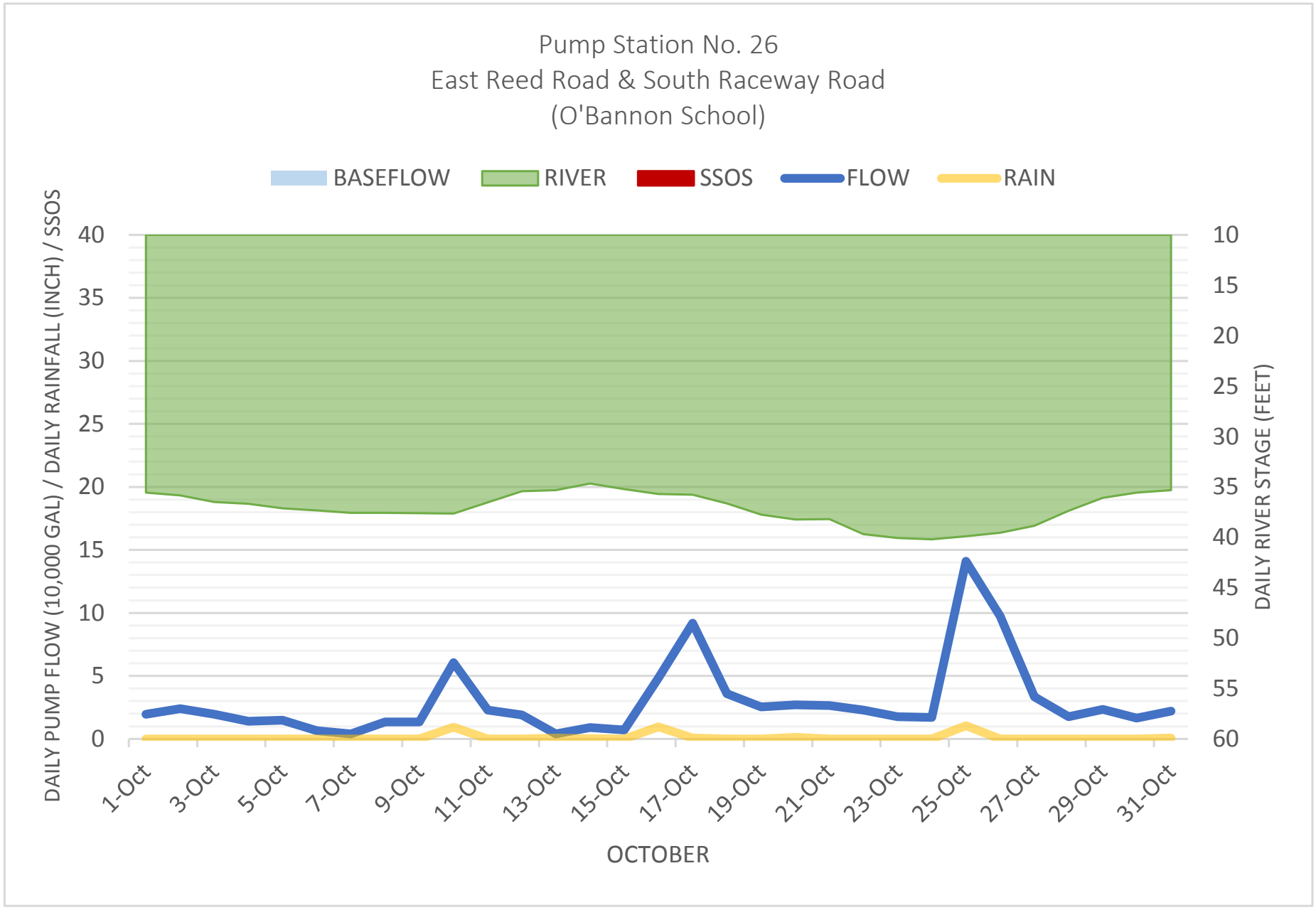
MS29-B/PS26 GRAPHS

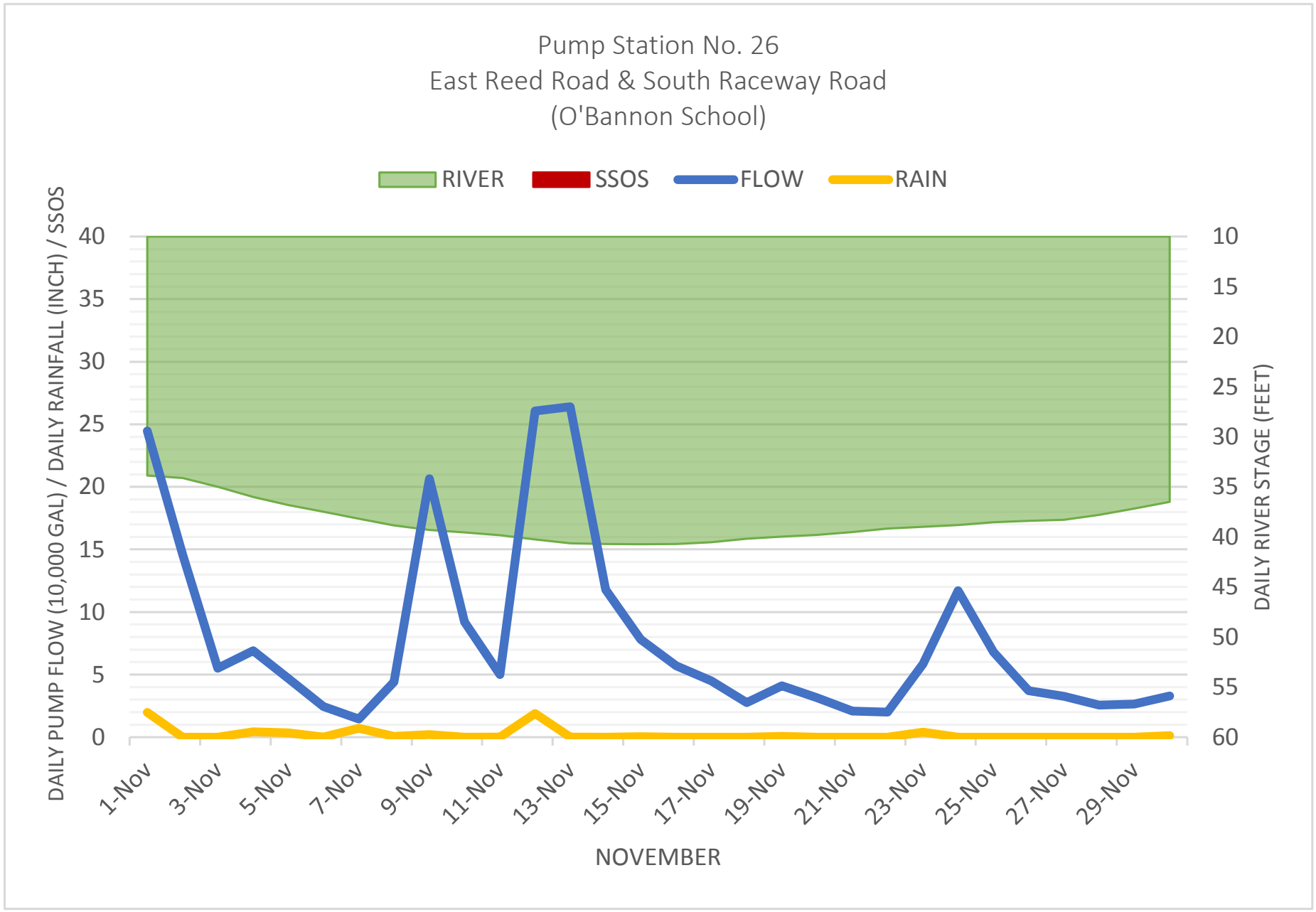


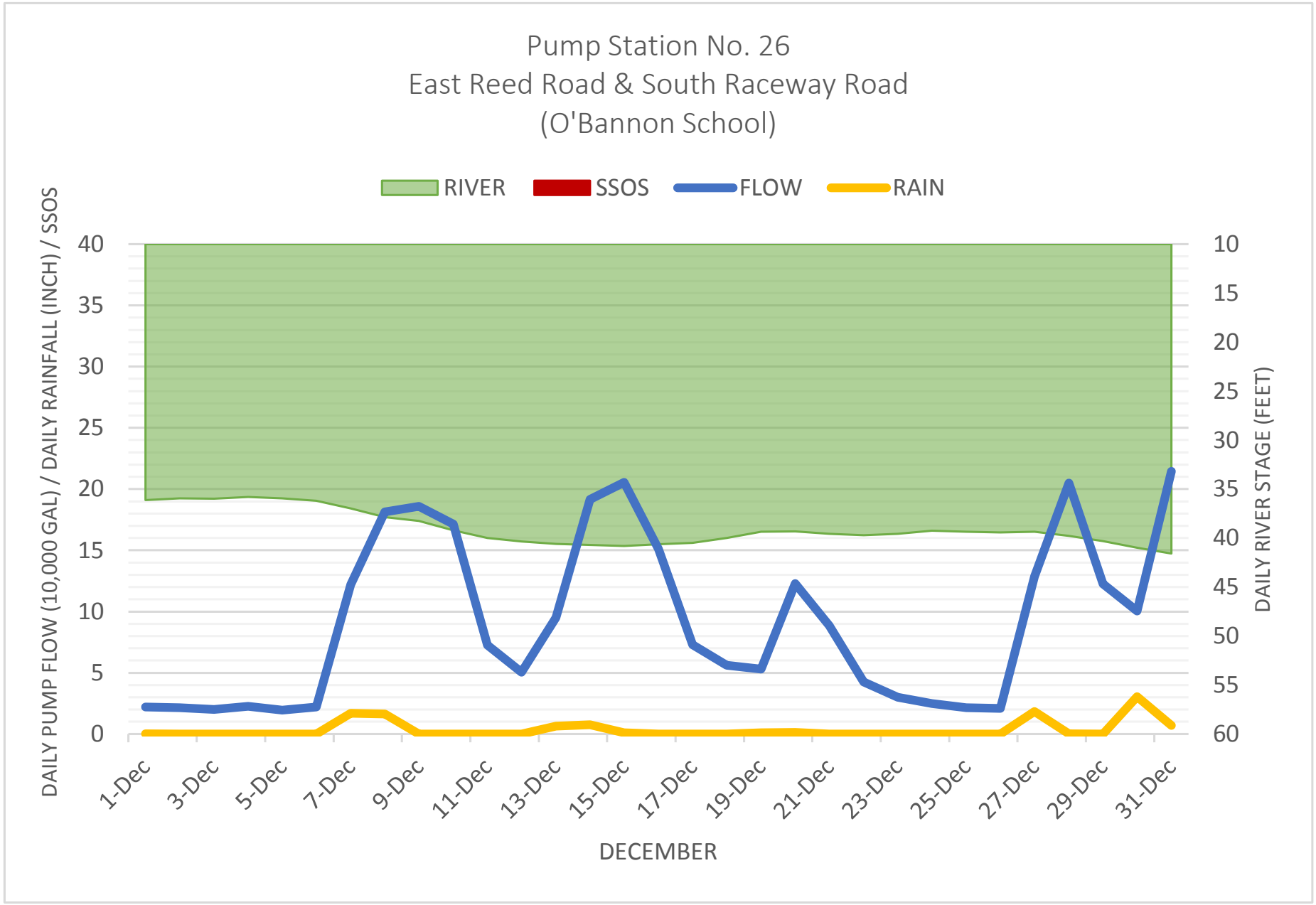
NOTE: Bad flow meter head.

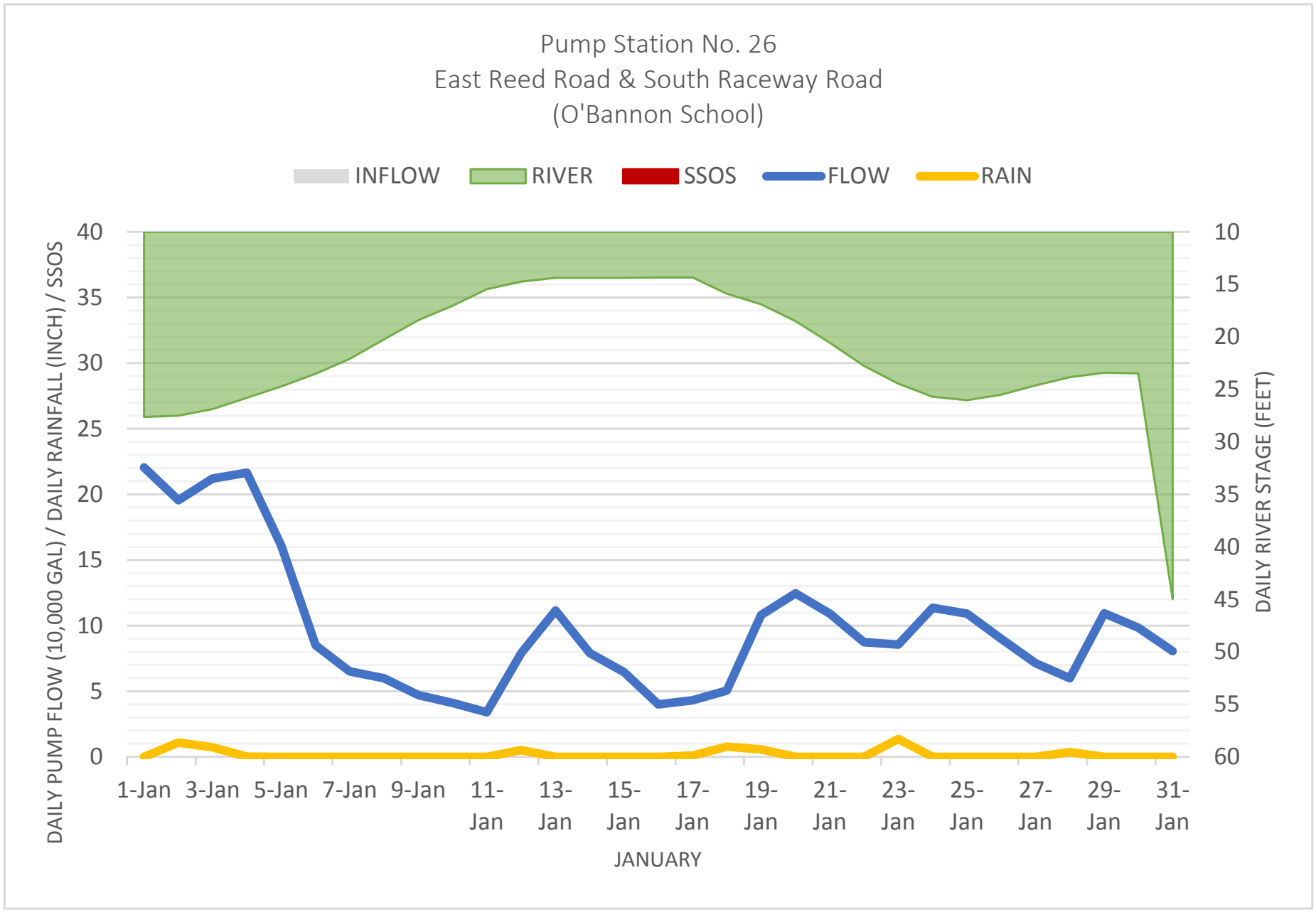


NOTE: Bad flow meter head, September 1st-3rd.


Pump Station No. 26
East Reed Road & South Raceway Road
(O'Bannon School)
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Oct
3-Oct
5-Oct
7-Oct
9-Oct
11-Oct
13-Oct
15-Oct
17-Oct
19-Oct
21-Oct
23-Oct
25-Oct
27-Oct
29-Oct
31-Oct
OCTOBER


Pump Station No. 26
East Reed Road & South Raceway Road
(O'Bannon School)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Nov
3-Nov
5-Nov
7-Nov
9-Nov
11-Nov
13-Nov
15-Nov
17-Nov
19-Nov
21-Nov
23-Nov
25-Nov
27-Nov
29-Nov
NOVEMBER


Pump Station No. 26
East Reed Road & South Raceway Road
(O'Bannon School)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Dec
3-Dec
5-Dec
7-Dec
9-Dec
11-Dec
13-Dec
15-Dec
17-Dec
19-Dec
21-Dec
23-Dec
25-Dec
27-Dec
29-Dec
31-Dec
DECEMBER


Pump Station No. 26
East Reed Road & South Raceway Road
(O'Bannon School)
INFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Jan
3-Jan
5-Jan
7-Jan
9-Jan
11-Jan
13-Jan
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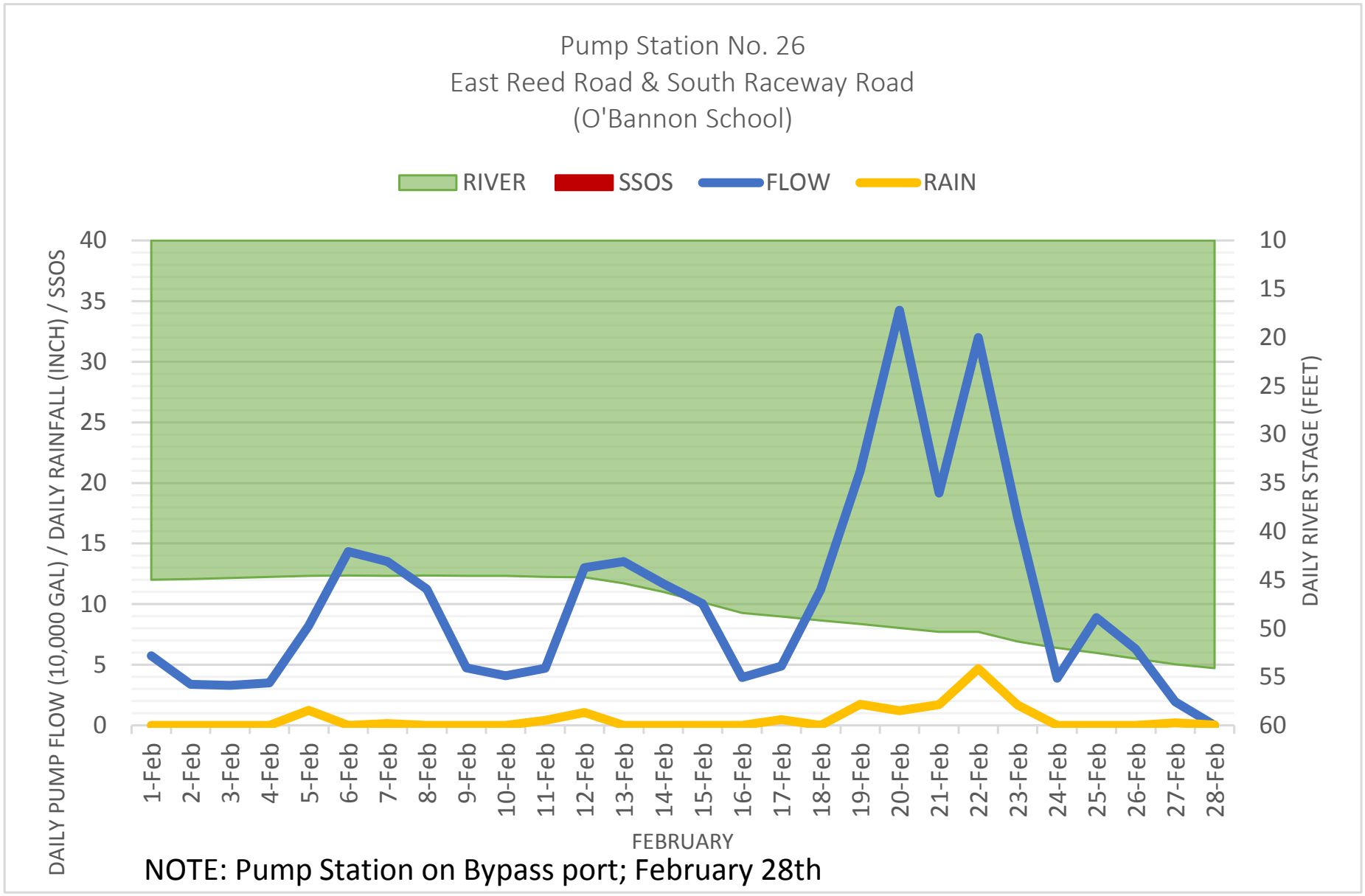
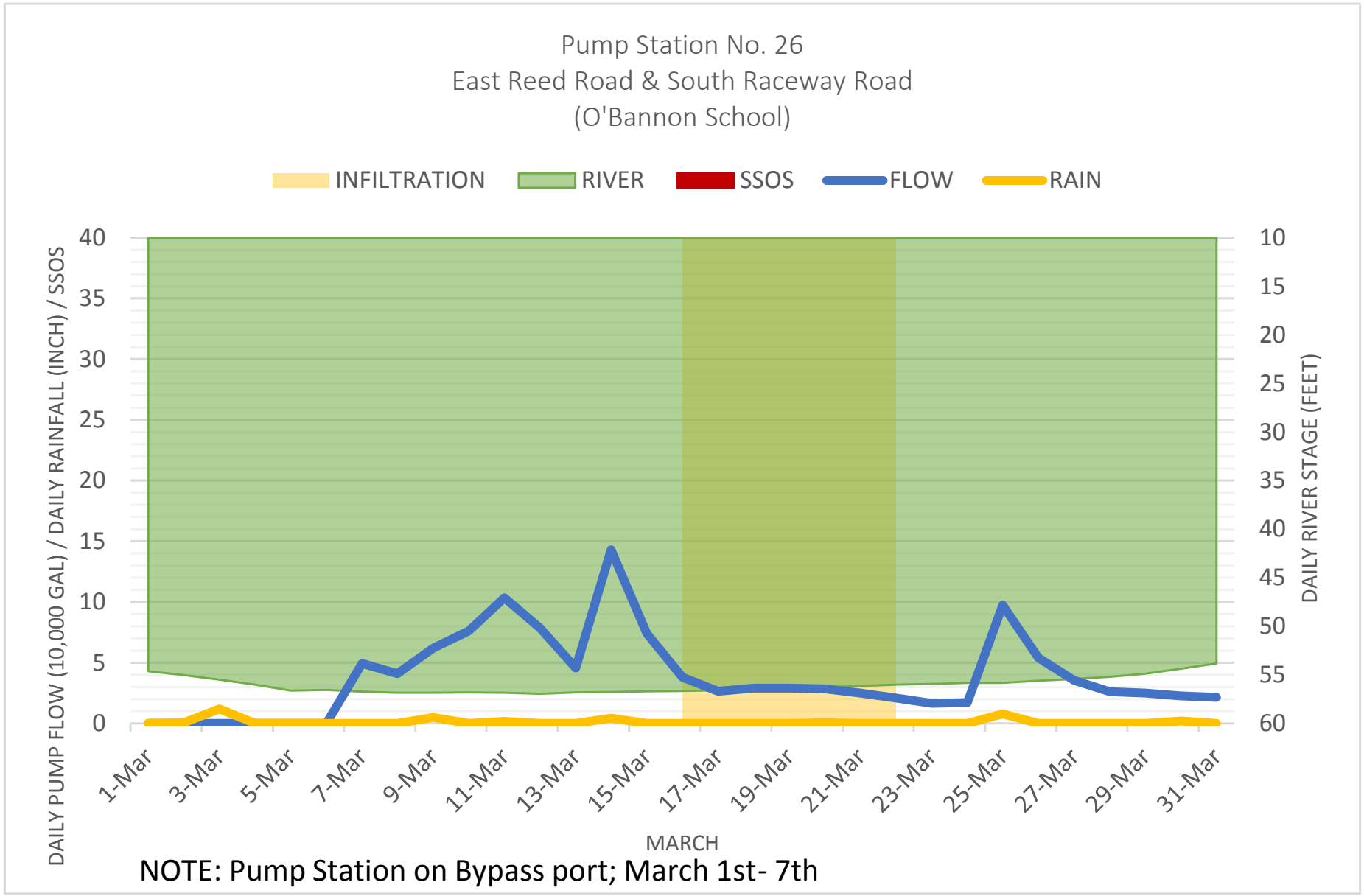
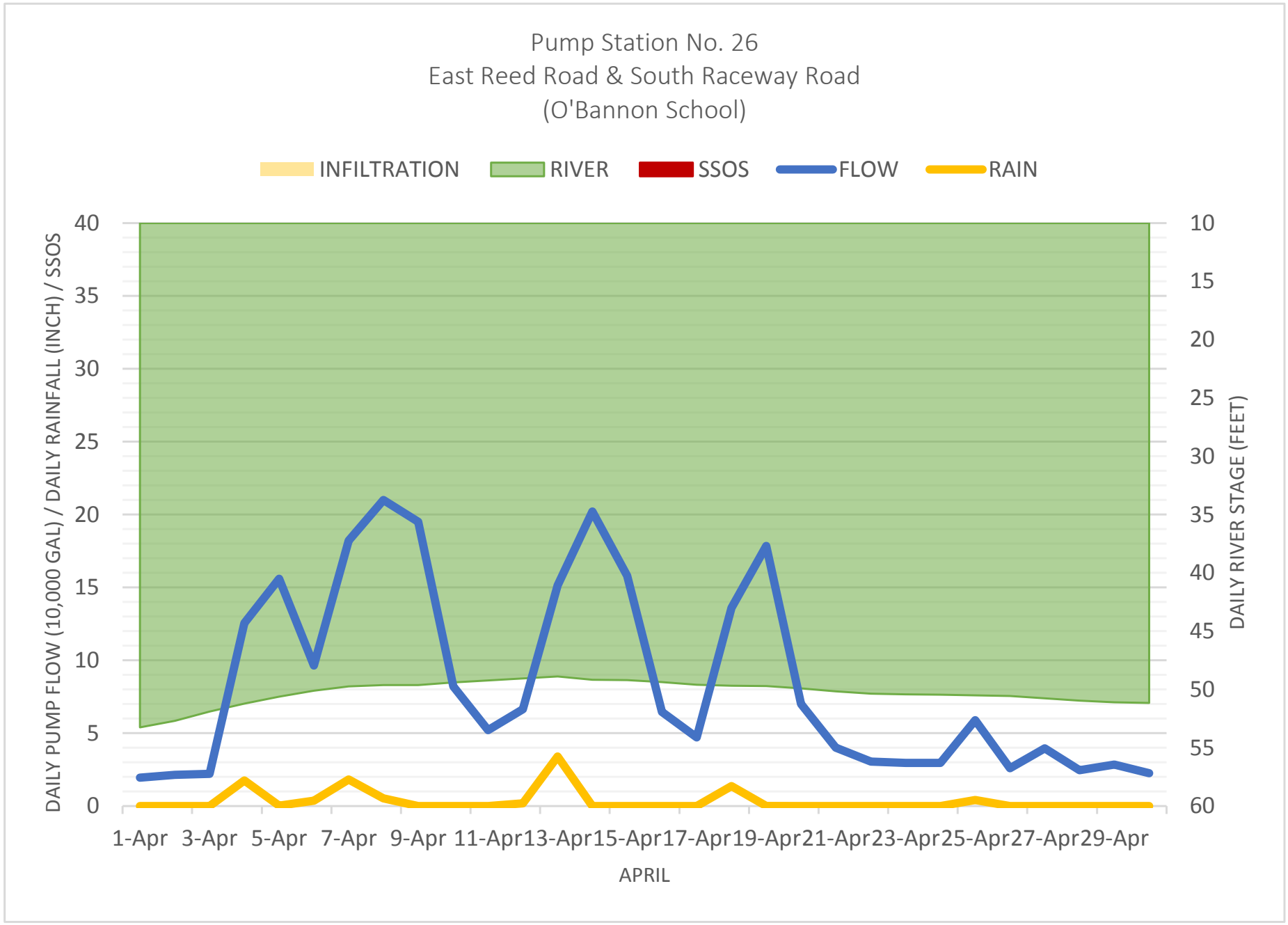
17-Jan
19-Jan
21-Jan
23-Jan
25-Jan
27-Jan
29-Jan
31-Jan
JANUARY



NOTE: Pump Station on Bypass port; February 28th



NOTE: Pump Station on Bypass port; March 1st- 7th


Pump Station No. 26
East Reed Road & South Raceway Road
(O'Bannon School)
INFILTRATION
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
0
5
10
15
20
25
30
35
40
10
15
20
25
30
35
40
45
50
55
60
1-Apr
3-Apr
5-Apr
7-Apr
9-Apr
11-Apr
13-Apr
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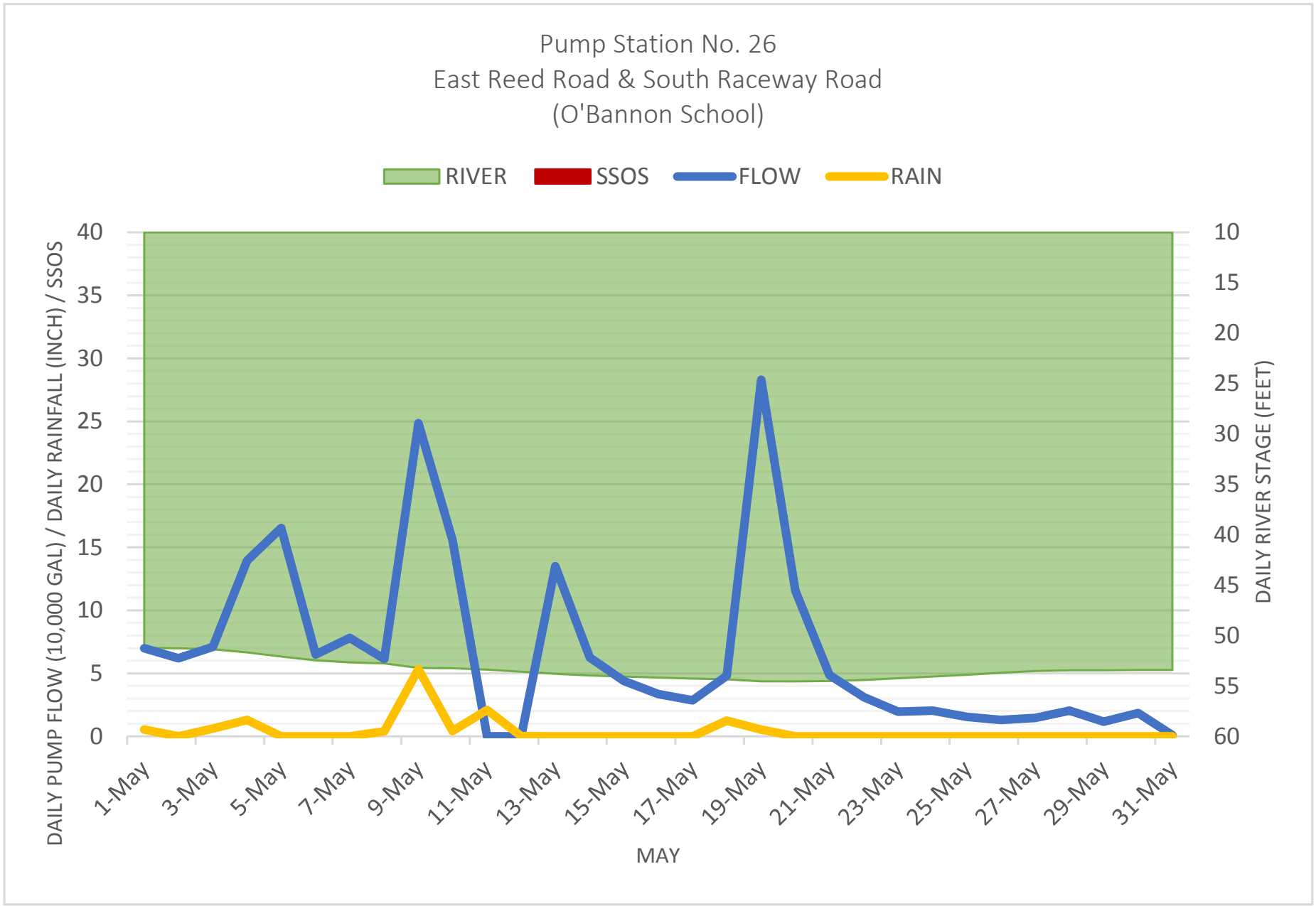
17-Apr
19-Apr
21-Apr
23-Apr
25-Apr
27-Apr
29-Apr
APRIL


Pump Station No. 26
East Reed Road & South Raceway Road
(O'Bannon School)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
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1-May
3-May
5-May
7-May
9-May
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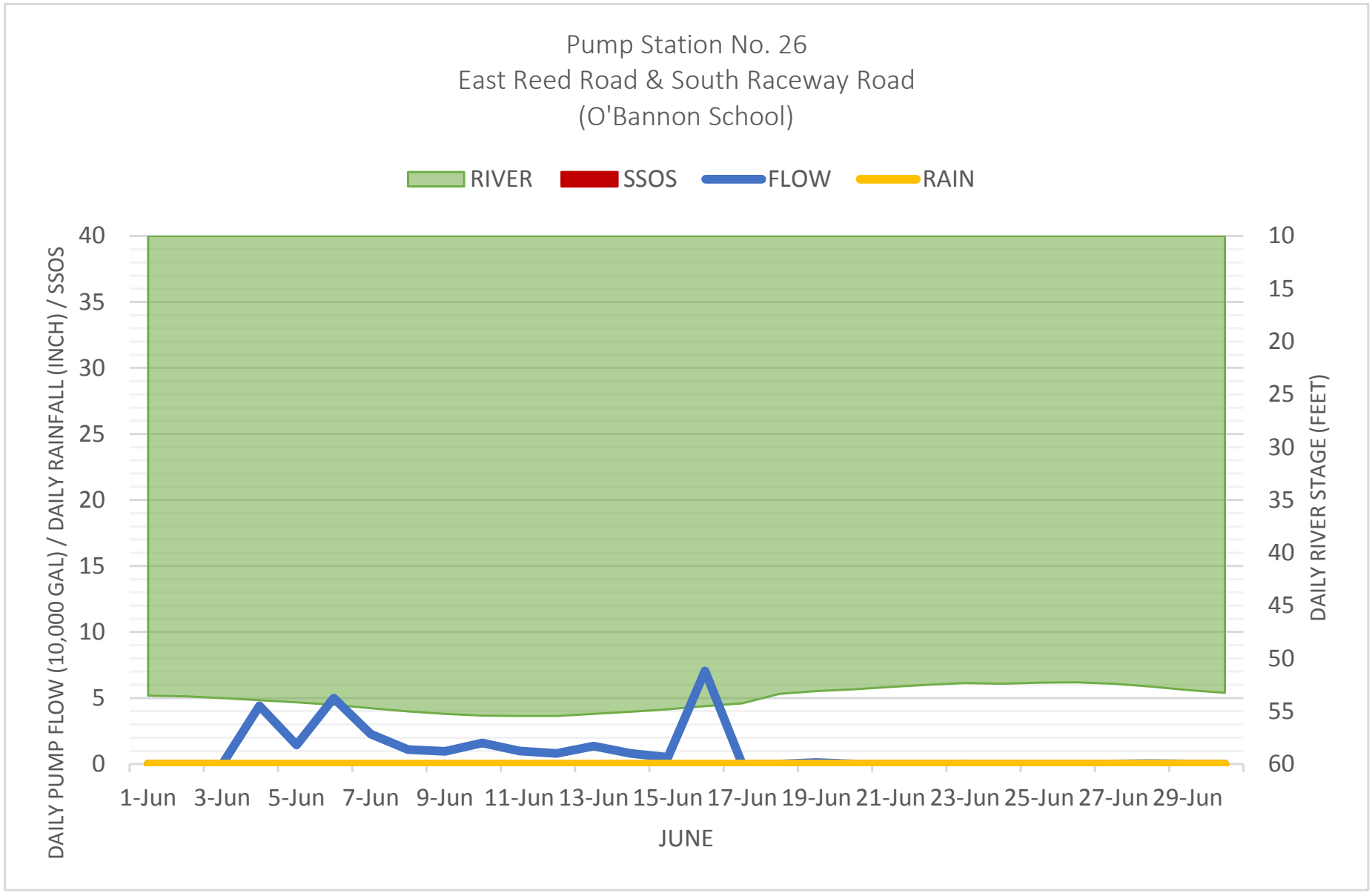
21-May
23-May
25-May
27-May
29-May
31-May
MAY


Pump Station No. 26
East Reed Road & South Raceway Road
(O'Bannon School)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
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25
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15
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1-Jun
3-Jun
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15-Jun
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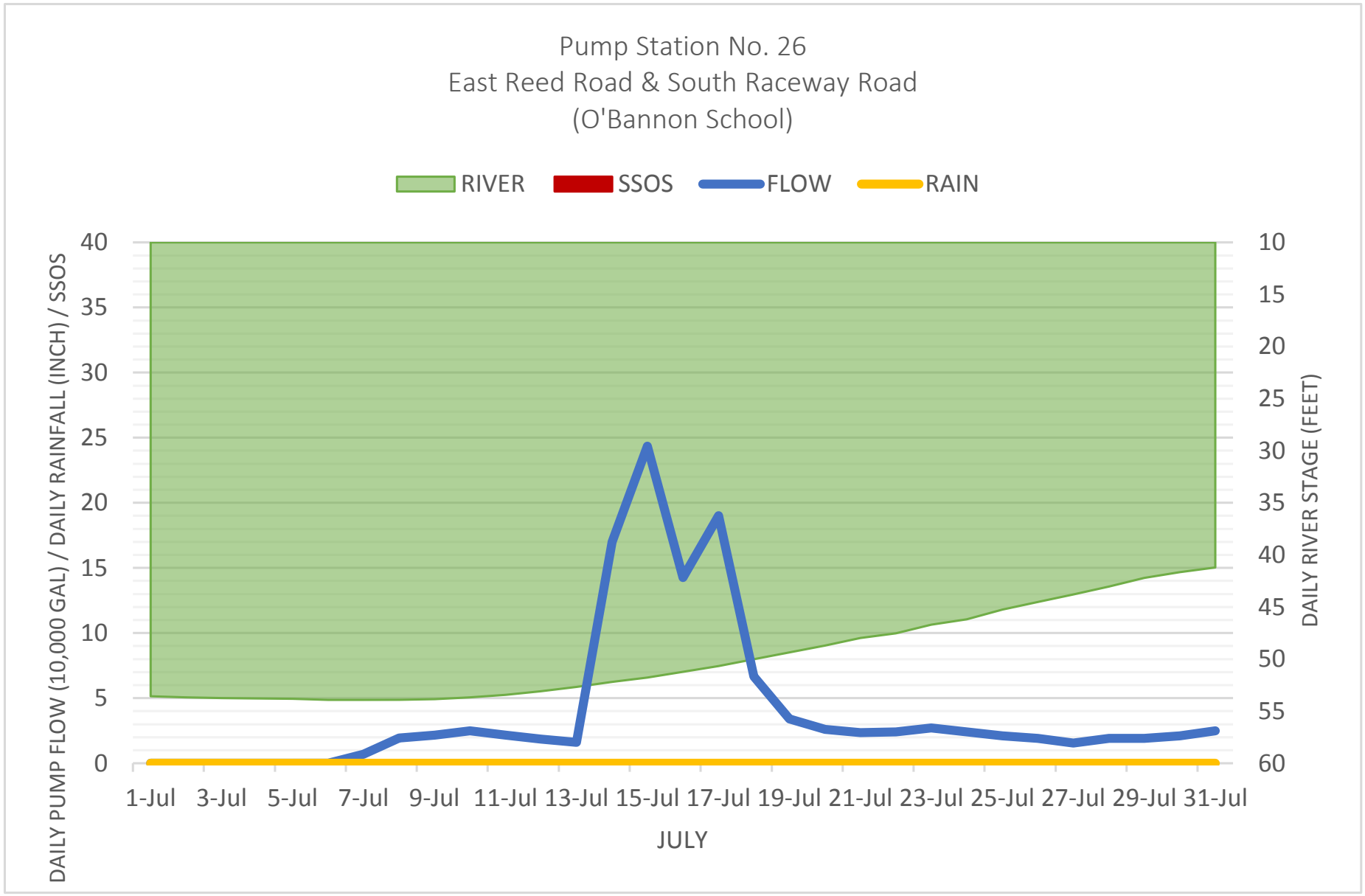
19-Jun
21-Jun
23-Jun
25-Jun
27-Jun
29-Jun
JUNE


Pump Station No. 26
East Reed Road & South Raceway Road
(O'Bannon School)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
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15
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25
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35
40
45
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55
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1-Jul
3-Jul
5-Jul
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27-Jul
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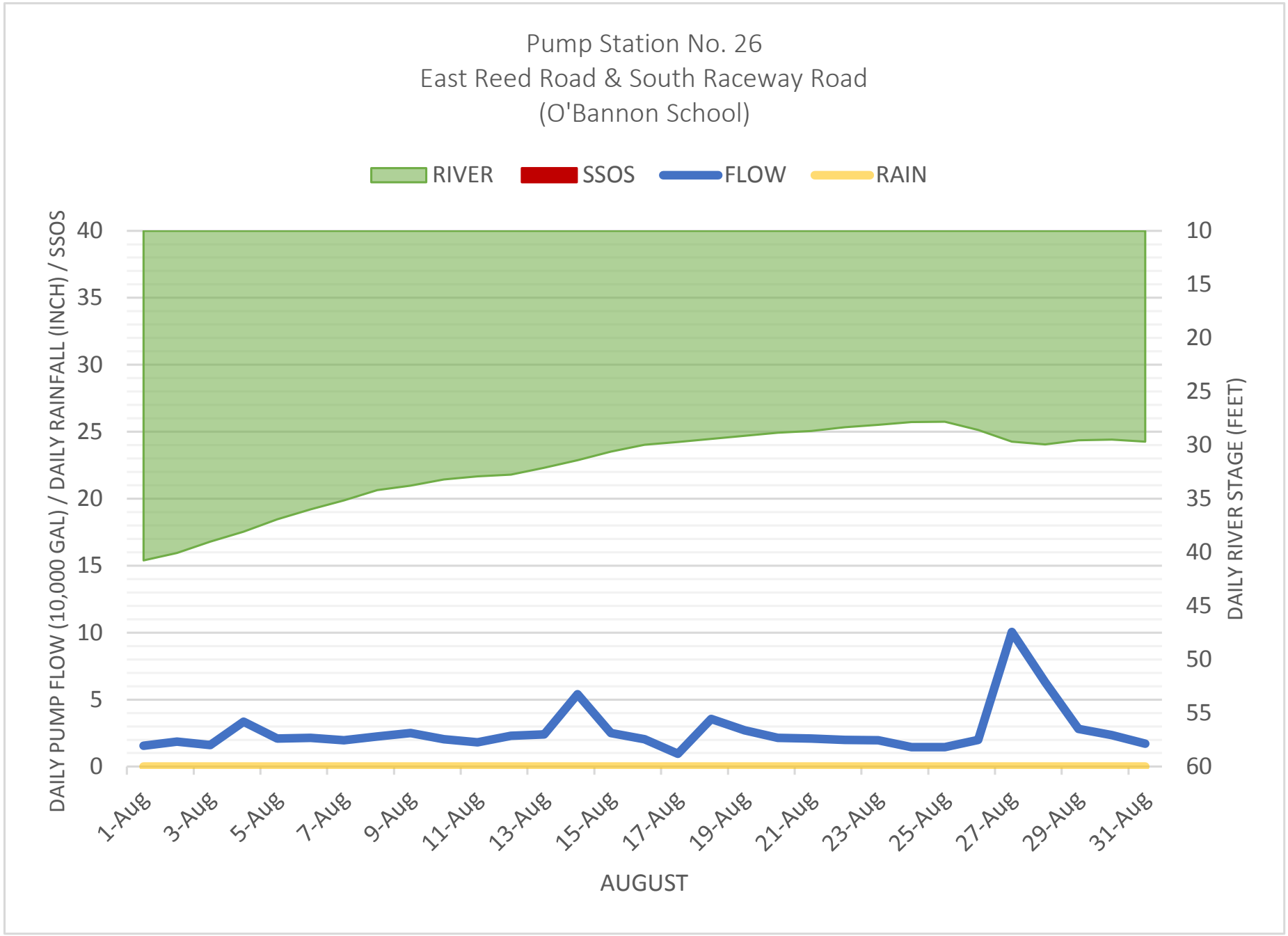
31-Jul
JULY


Pump Station No. 26
East Reed Road & South Raceway Road
(O'Bannon School)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
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1-Aug
3-Aug
5-Aug
7-Aug
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21-Aug
23-Aug
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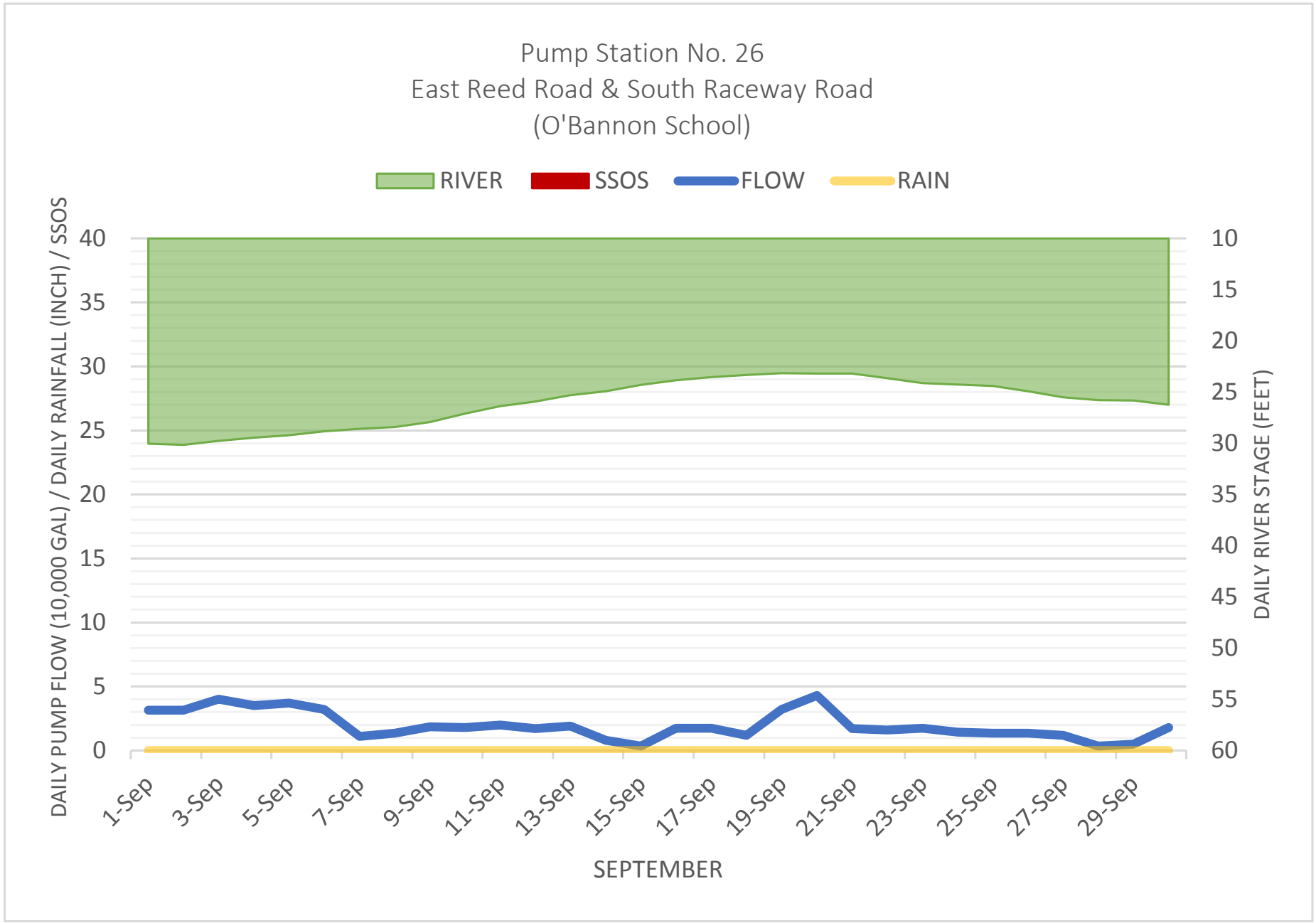
27-Aug
29-Aug
31-Aug
AUGUST


Pump Station No. 26
East Reed Road & South Raceway Road
(O'Bannon School)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Sep
3-Sep
5-Sep
7-Sep
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17-Sep
19-Sep
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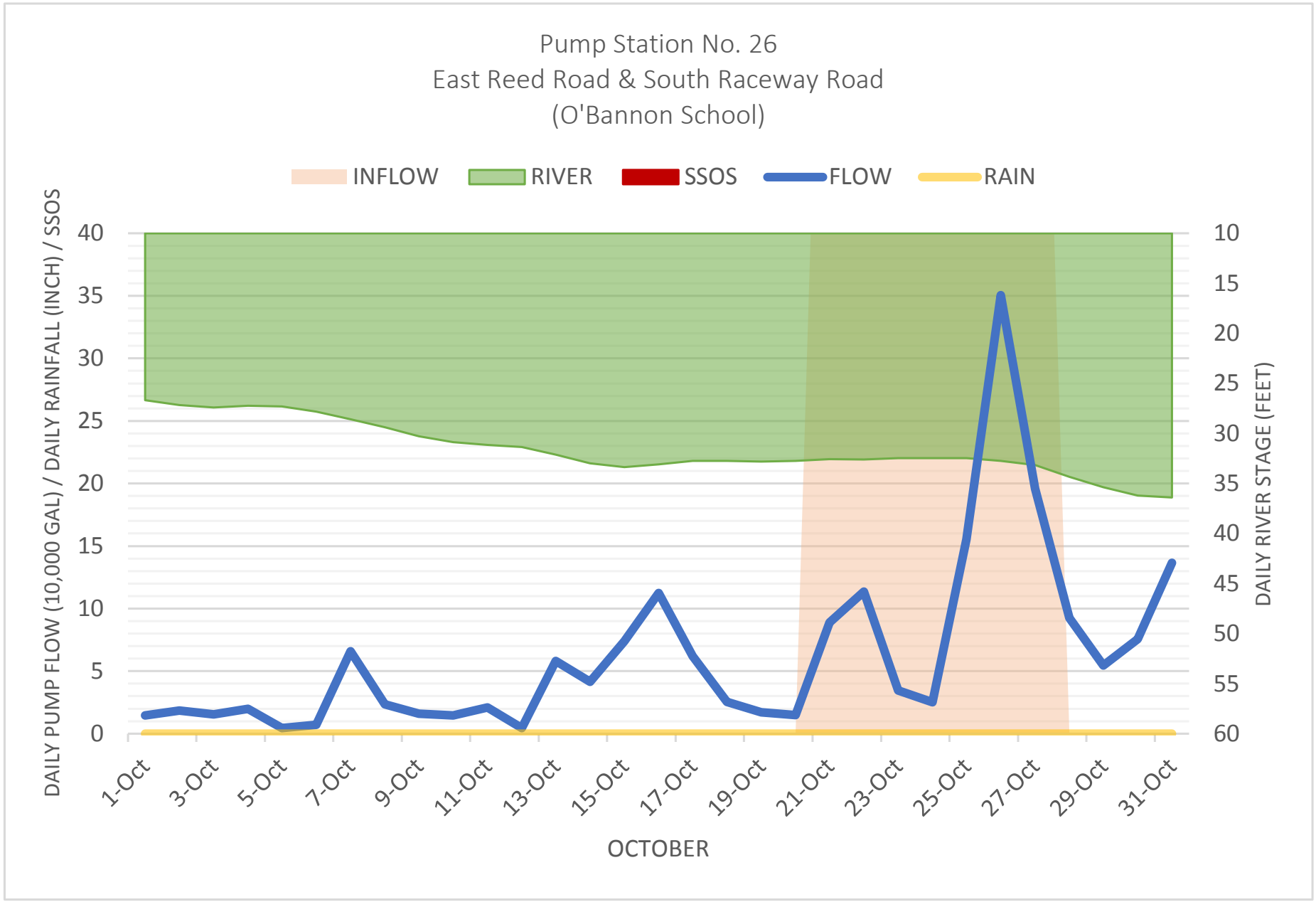
23-Sep
25-Sep
27-Sep
29-Sep
SEPTEMBER


Pump Station No. 26
East Reed Road & South Raceway Road
(O'Bannon School)
INFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Oct
3-Oct
5-Oct
7-Oct
9-Oct
11-Oct
13-Oct
15-Oct
17-Oct
19-Oct
21-Oct
23-Oct
25-Oct
27-Oct
29-Oct
31-Oct
OCTOBER

APPENDIX 53

MS29-B/PS47 I/I WORKSHEET

MS29-B/PS47
INFLOW & INFILTRATION WORKSHEET

Infiltration

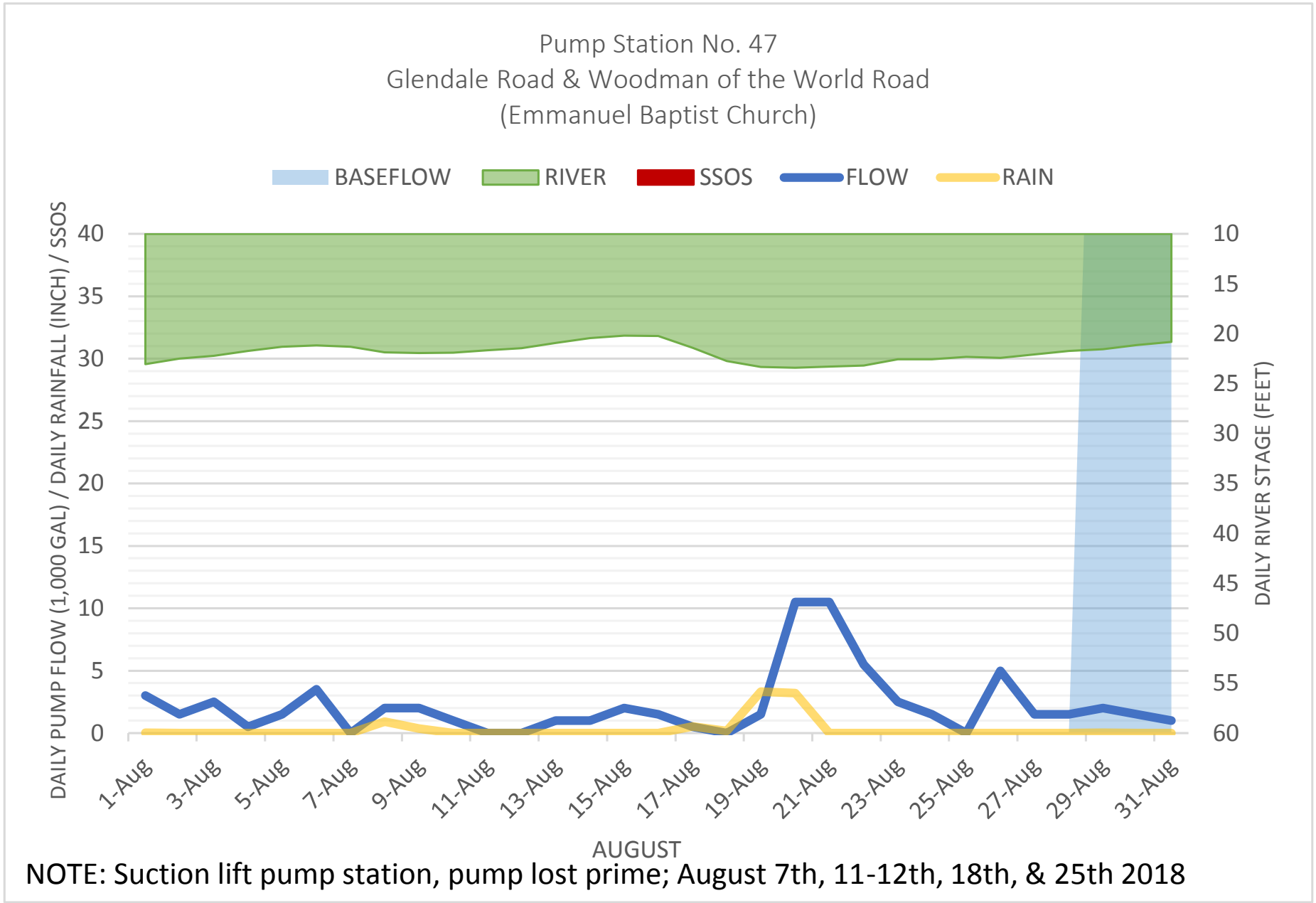
	feet	miles	diameter	inch-miles	
8" Gravity	500	0.09	8	0.757576	
Laterals	2124	0.40	6	2.413636	
				3.171212	**total inch-miles in system**
		maximum average infiltration	inch-miles		
		2,142.8571	3.17	**675.7218**	**total gpd/idm**

Inflow

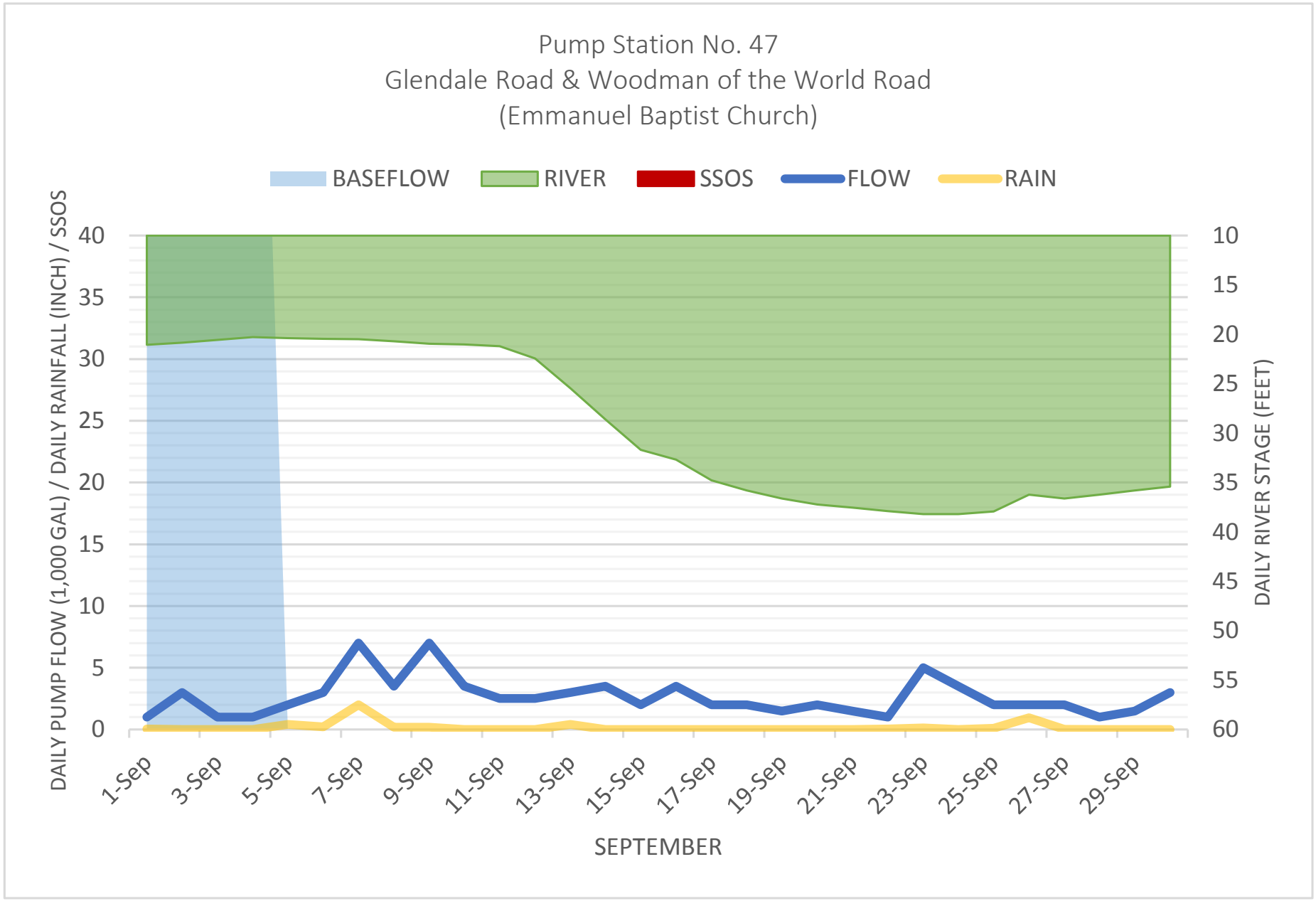
	feet	miles	diameter	inch-miles	
8" Gravity	500	0.09	8	0.757576	
Laterals	2124	0.40	6	2.413636	
Total Pipe	2624				
				3.171212	**total inch-miles in system**
		maximum average inflow	inch-miles		
		4,714	3.17	**1486.588**	**total gpd/idm**

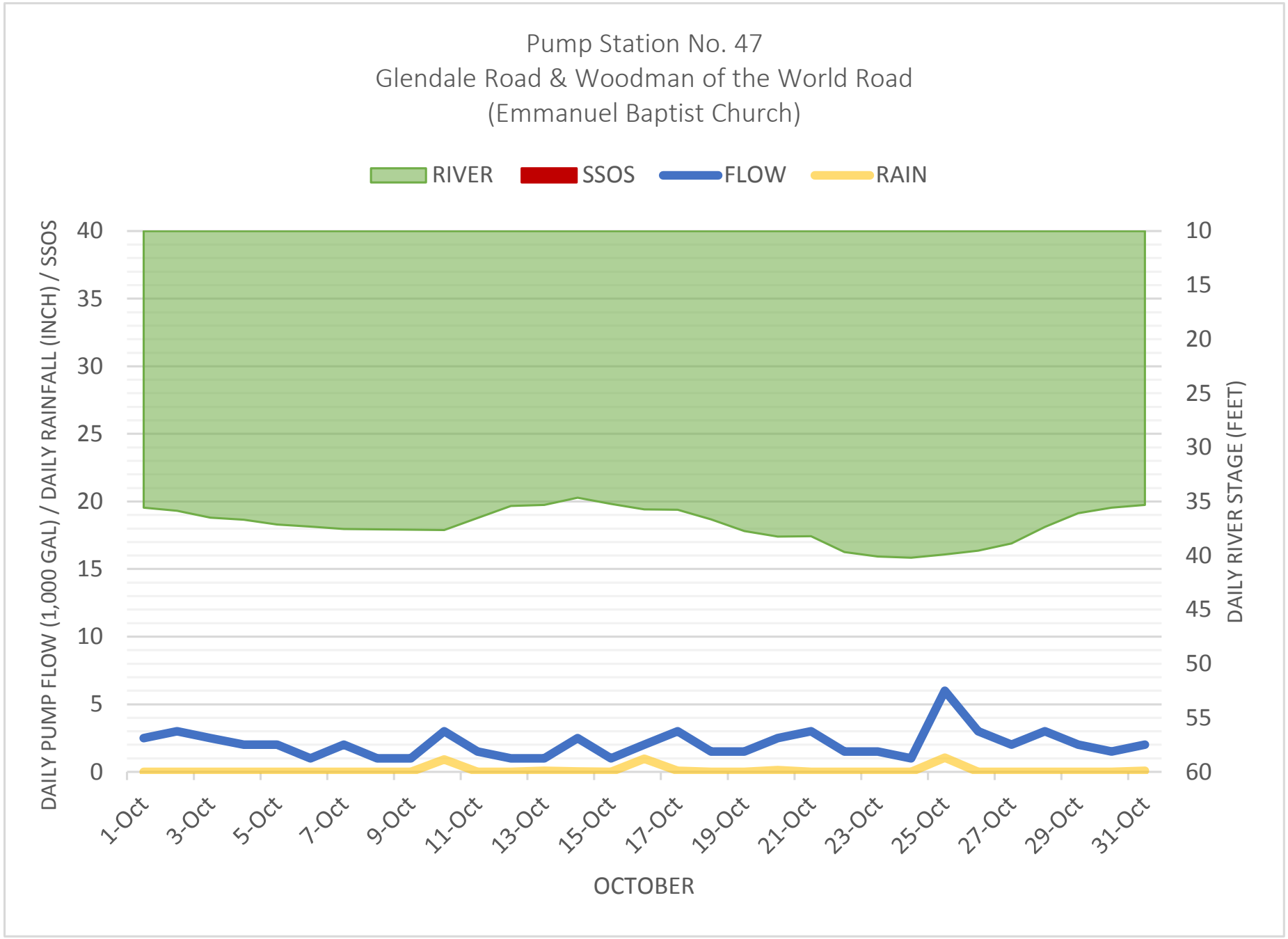
APPENDIX 54

MS29-B/PS47 GRAPHS



NOTE: Suction lift pump station, pump lost prime; August 7th, 11-12th, 18th, & 25th 2018


Pump Station No. 47
Glendale Road & Woodman of the World Road
(Emmanuel Baptist Church)
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
0
5
10
15
20
25
30
35
40
10
15
20
25
30
35
40
45
50
55
60
1-Sep
3-Sep
5-Sep
7-Sep
9-Sep
11-Sep
13-Sep
15-Sep
17-Sep
19-Sep
21-Sep
23-Sep
25-Sep
27-Sep
29-Sep
SEPTEMBER


Pump Station No. 47
Glendale Road & Woodman of the World Road
(Emmanuel Baptist Church)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Oct
3-Oct
5-Oct
7-Oct
9-Oct
11-Oct
13-Oct
15-Oct
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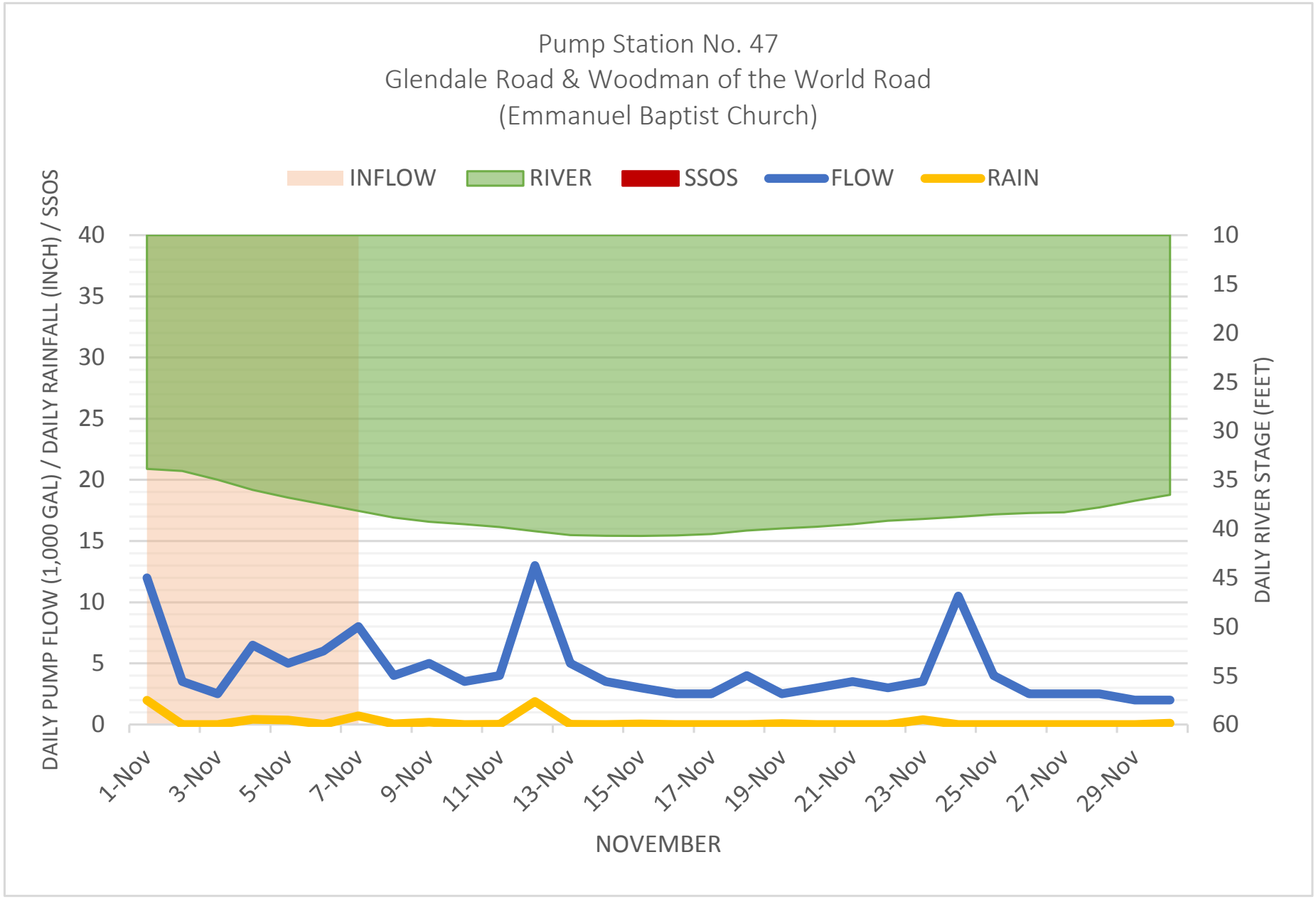
19-Oct
21-Oct
23-Oct
25-Oct
27-Oct
29-Oct
31-Oct
OCTOBER


Pump Station No. 47
Glendale Road & Woodman of the World Road
(Emmanuel Baptist Church)
INFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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35
30
25
20
15
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0
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45
50
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1-Nov
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5-Nov
7-Nov
9-Nov
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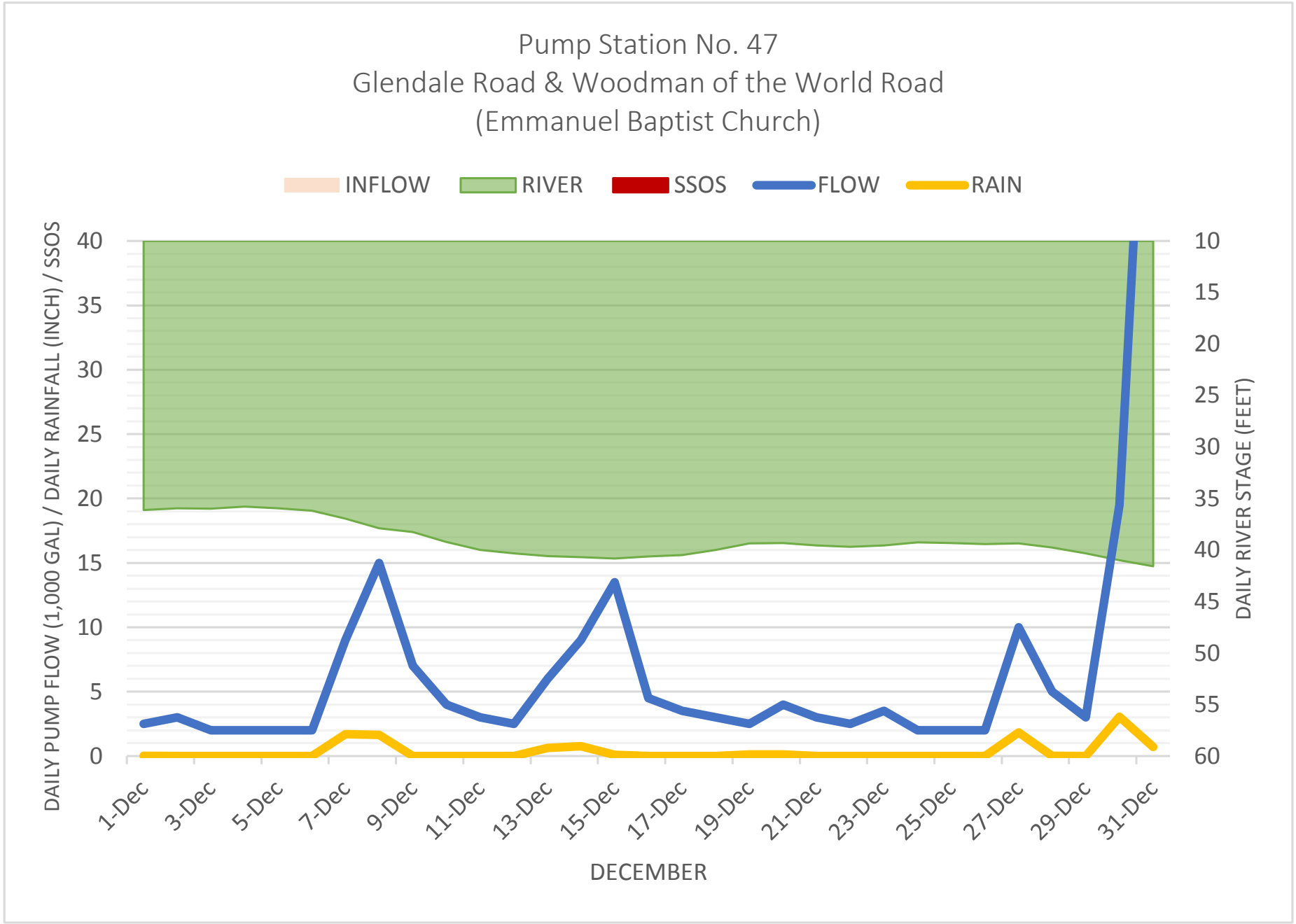
21-Nov
23-Nov
25-Nov
27-Nov
29-Nov
NOVEMBER


Pump Station No. 47
Glendale Road & Woodman of the World Road
(Emmanuel Baptist Church)
INFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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35
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25
20
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7-Dec
9-Dec
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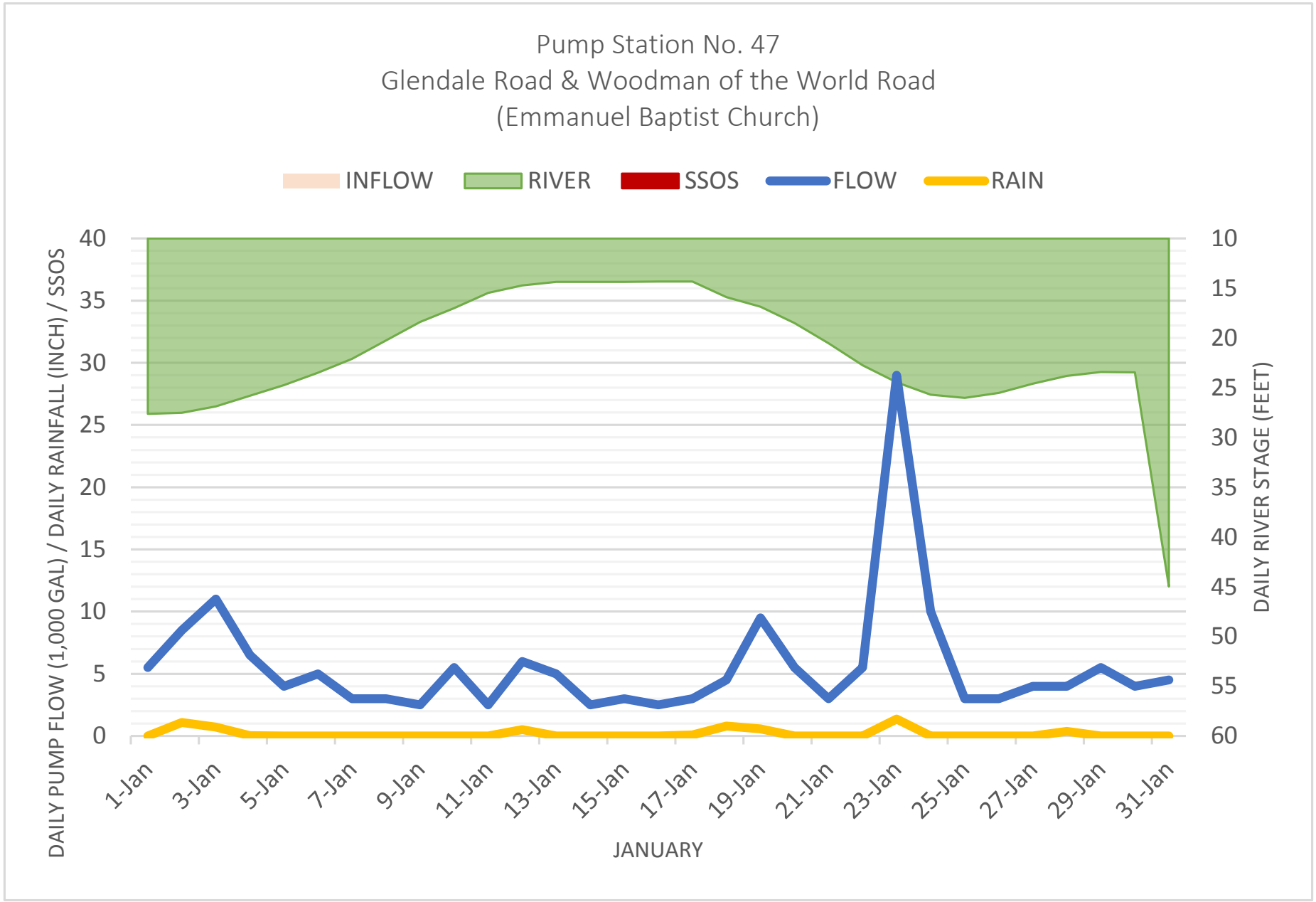
21-Dec
23-Dec
25-Dec
27-Dec
29-Dec
31-Dec
DECEMBER


Pump Station No. 47
Glendale Road & Woodman of the World Road
(Emmanuel Baptist Church)
INFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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7-Jan
9-Jan
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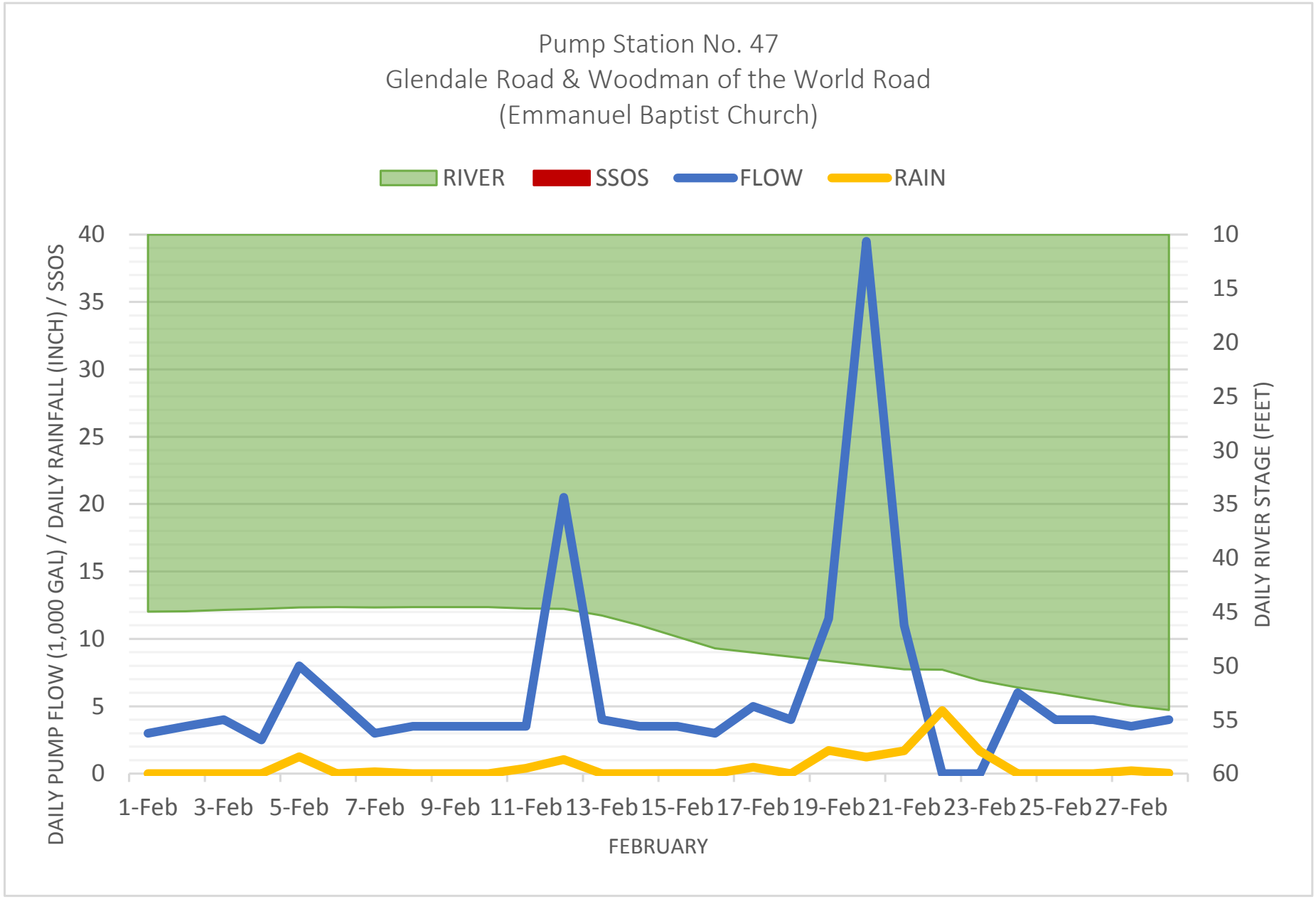
23-Jan
25-Jan
27-Jan
29-Jan
31-Jan
JANUARY


Pump Station No. 47
Glendale Road & Woodman of the World Road
(Emmanuel Baptist Church)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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3-Feb
5-Feb
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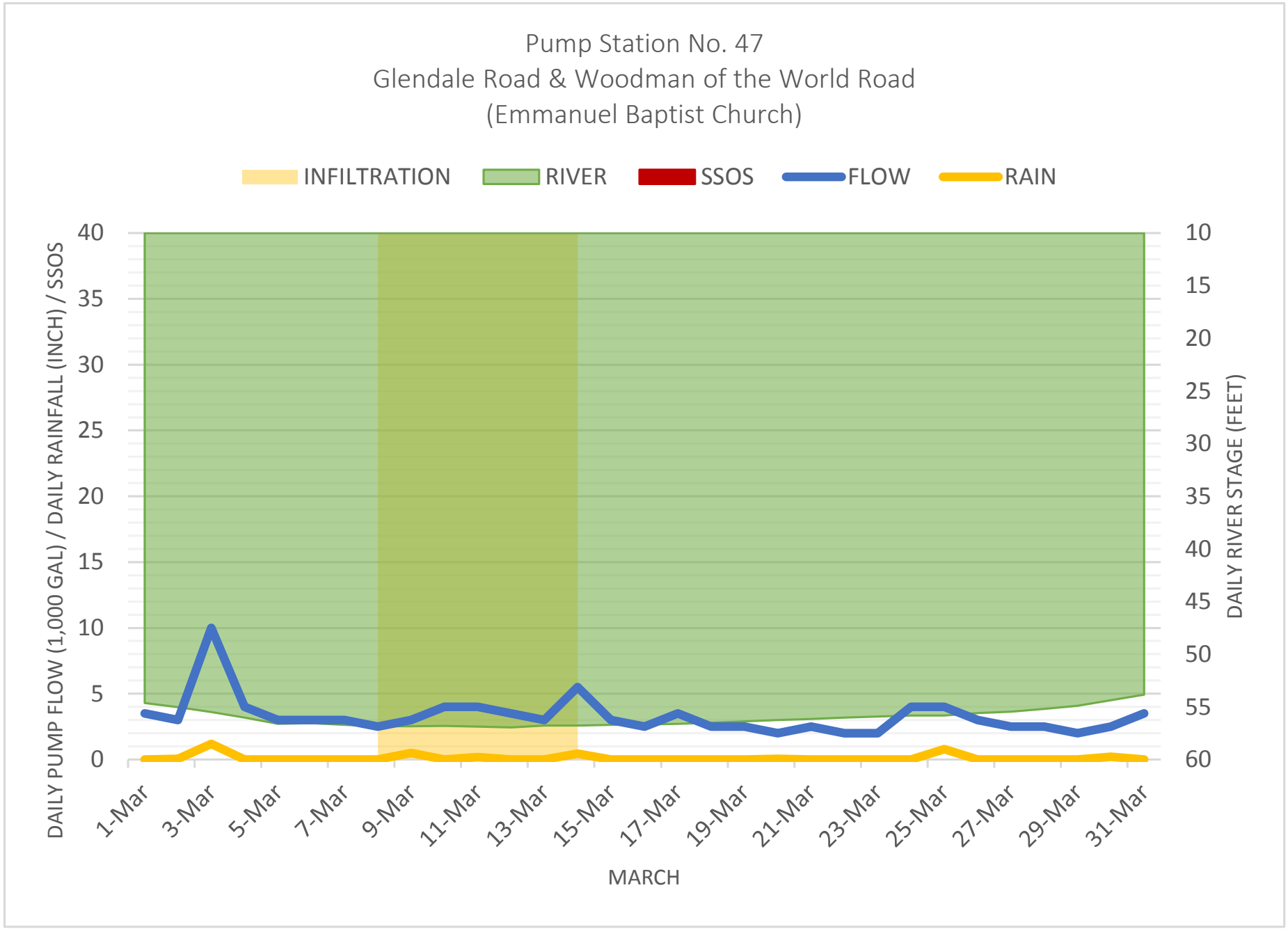
15-Feb
17-Feb
19-Feb
21-Feb
23-Feb
25-Feb
27-Feb
FEBRUARY


Pump Station No. 47
Glendale Road & Woodman of the World Road
(Emmanuel Baptist Church)
INFILTRATION
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
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25
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15
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1-Mar
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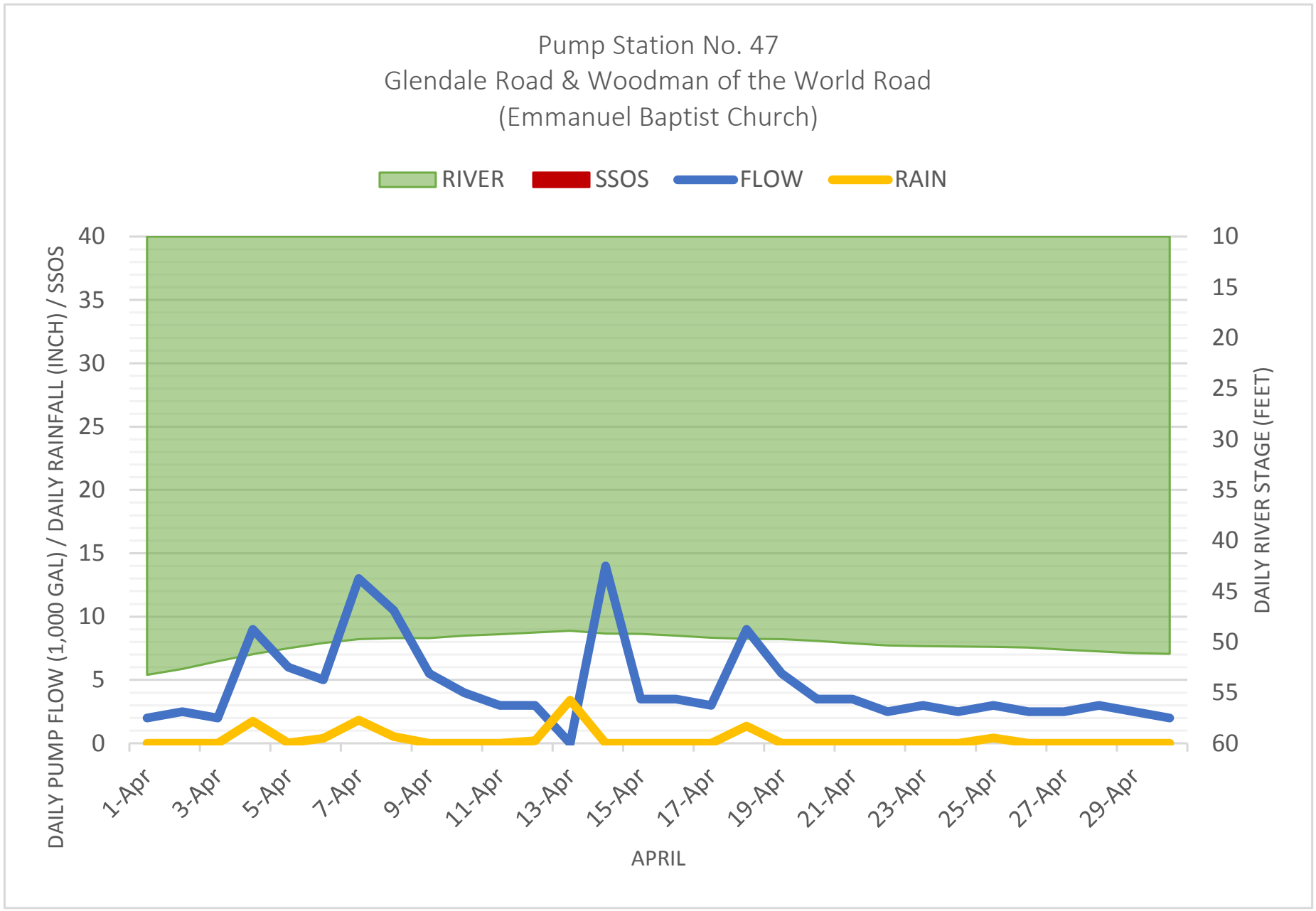
7-Mar
9-Mar
11-Mar
13-Mar
15-Mar
17-Mar
19-Mar
21-Mar
23-Mar
25-Mar
27-Mar
29-Mar
31-Mar
MARCH


Pump Station No. 47
Glendale Road & Woodman of the World Road
(Emmanuel Baptist Church)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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1-Apr
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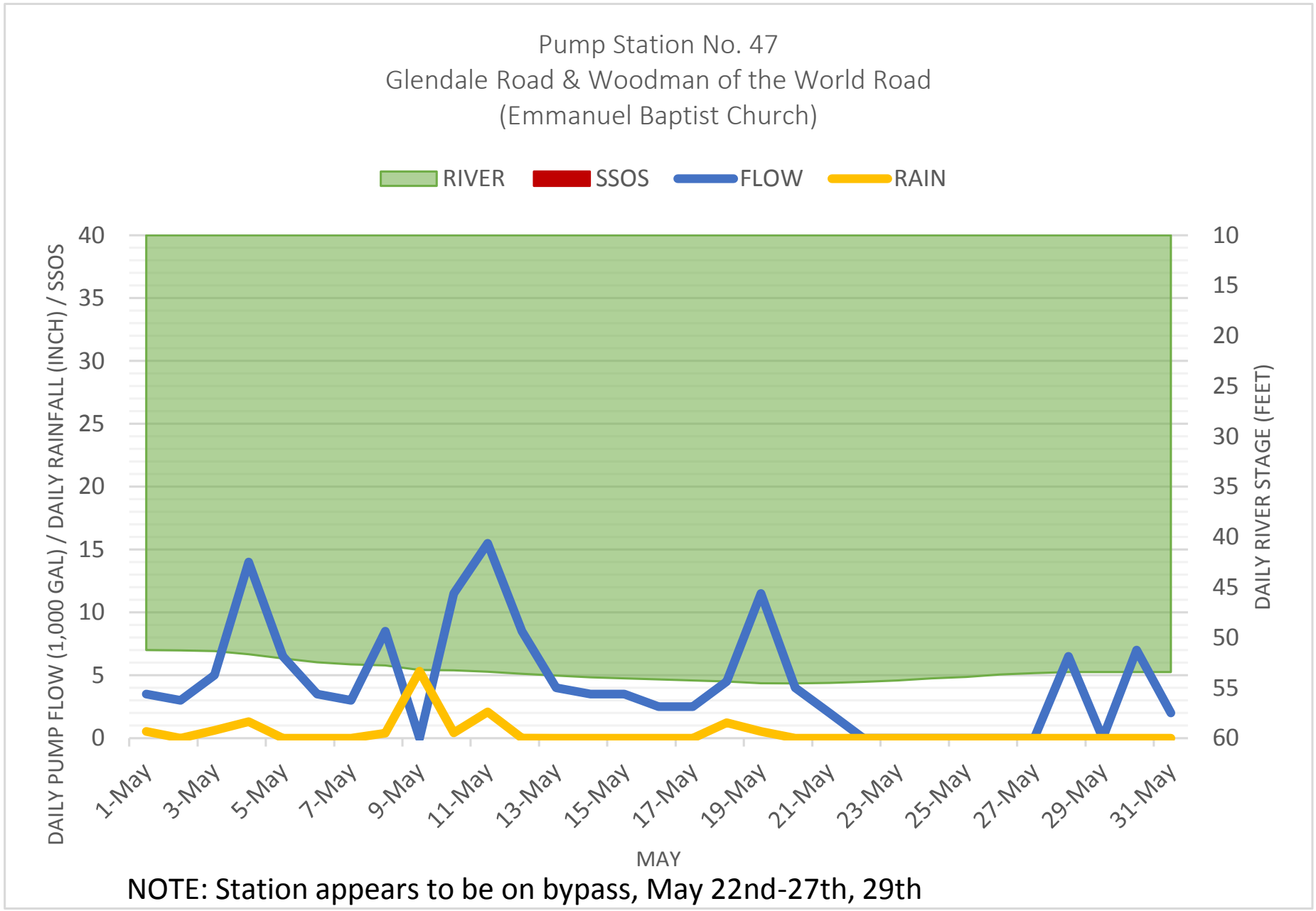
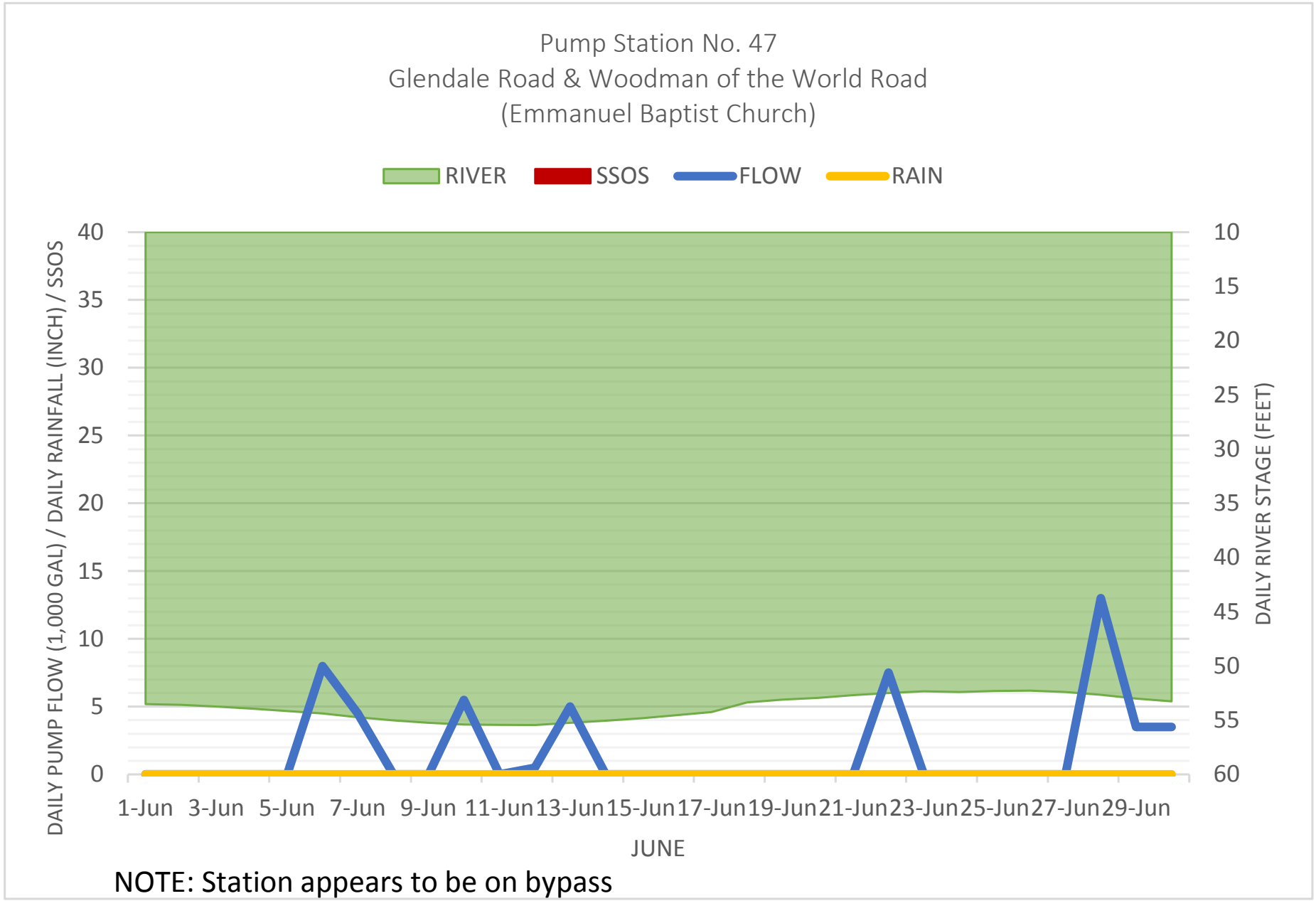
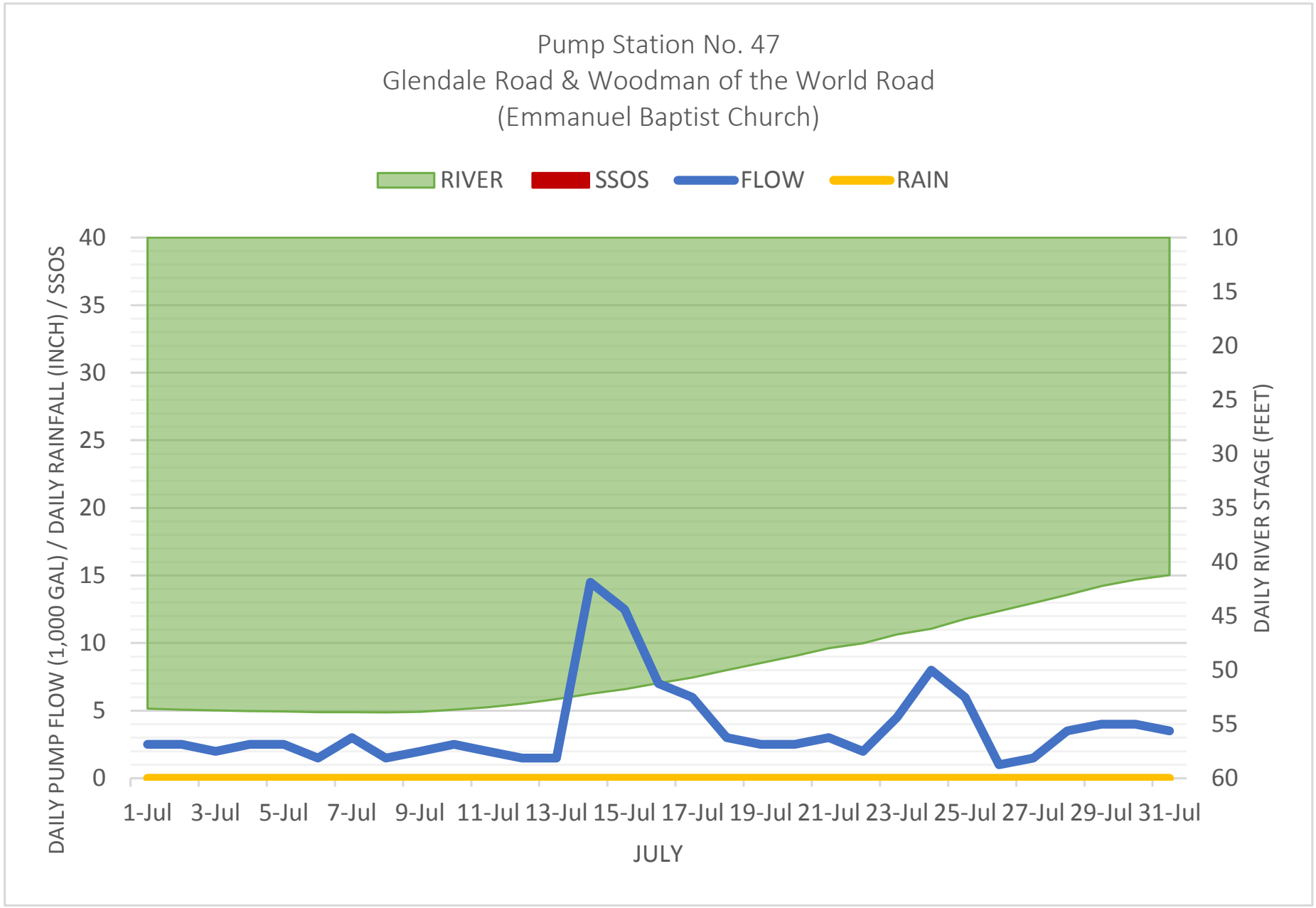
27-Apr
29-Apr
APRIL



NOTE: Station appears to be on bypass, May 22nd-27th, 29th



NOTE: Station appears to be on bypass


Pump Station No. 47
Glendale Road & Woodman of the World Road
(Emmanuel Baptist Church)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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1-Jul
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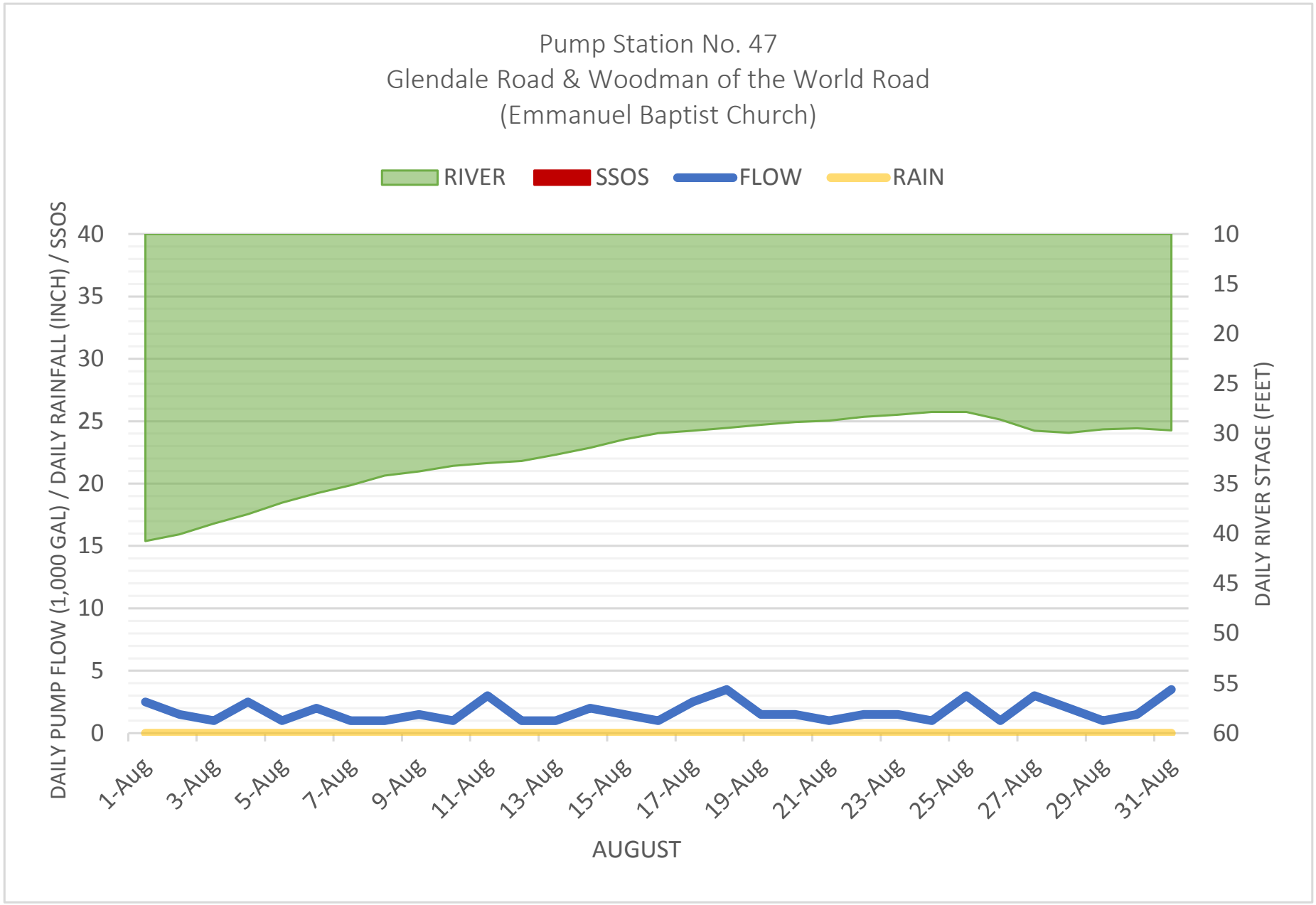
29-Jul
31-Jul
JULY


Pump Station No. 47
Glendale Road & Woodman of the World Road
(Emmanuel Baptist Church)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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7-Aug
9-Aug
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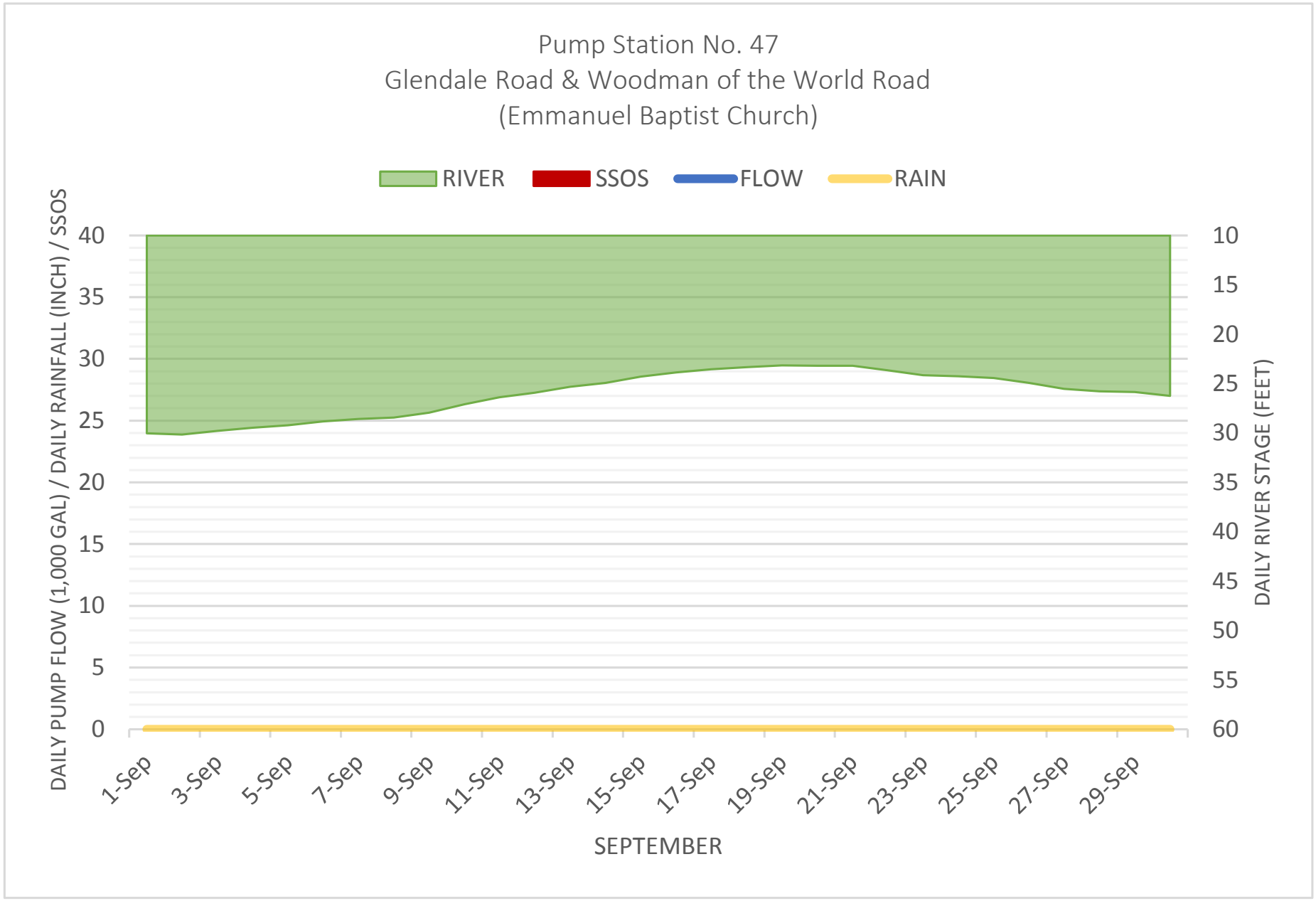
29-Aug
31-Aug
AUGUST


Pump Station No. 47
Glendale Road & Woodman of the World Road
(Emmanuel Baptist Church)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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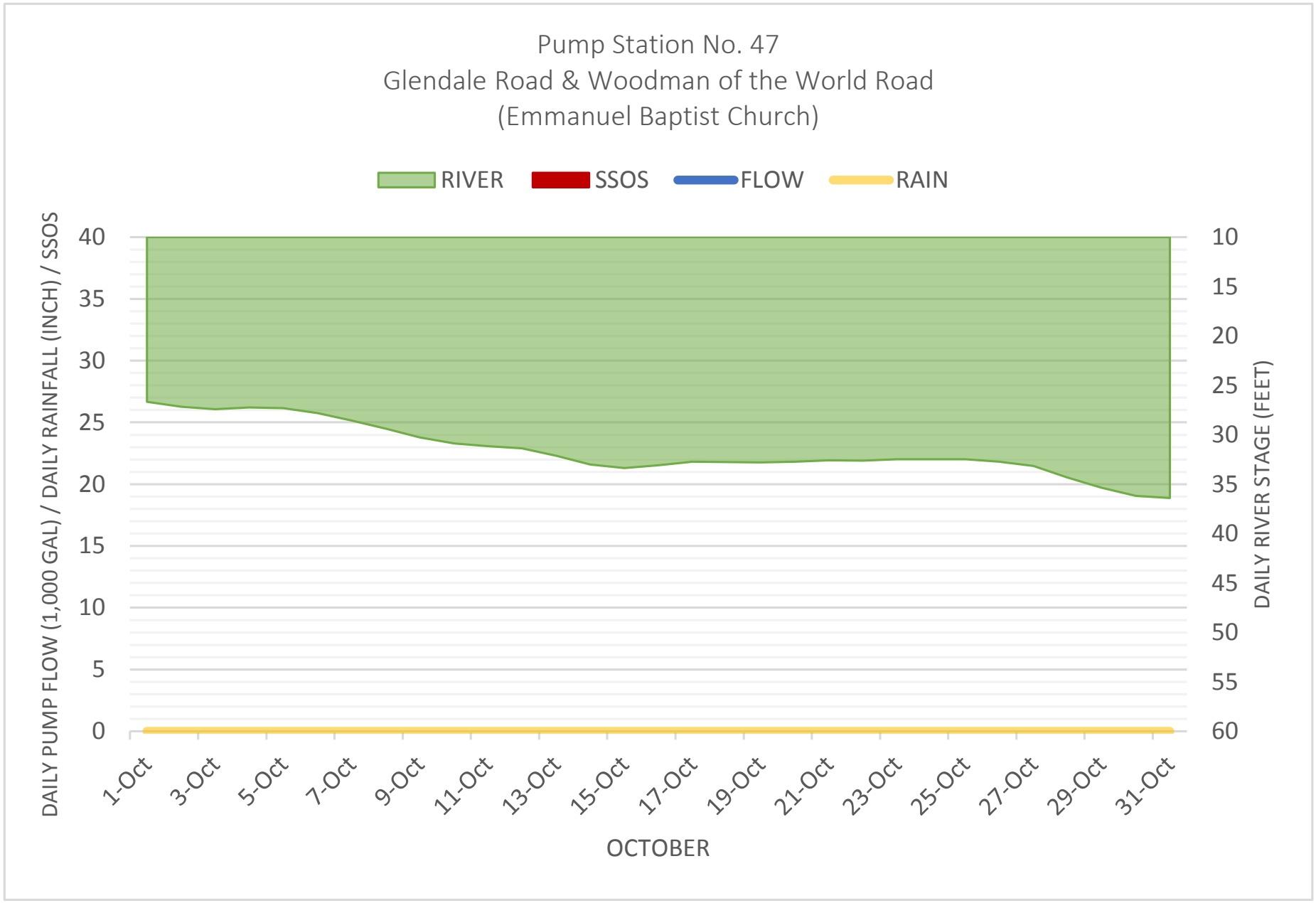
23-Sep
25-Sep
27-Sep
29-Sep
SEPTEMBER


Pump Station No. 47
Glendale Road & Woodman of the World Road
(Emmanuel Baptist Church)
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (1,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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25
20
15
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1-Oct
3-Oct
5-Oct
7-Oct
9-Oct
11-Oct
13-Oct
15-Oct
17-Oct
19-Oct
21-Oct
23-Oct
25-Oct
27-Oct
29-Oct
31-Oct
OCTOBER

APPENDIX 55

MS31-A/PS19 I/I WORKSHEET

MS31-A/PS19
INFLOW & INFILTRATION WORKSHEET

Infiltration

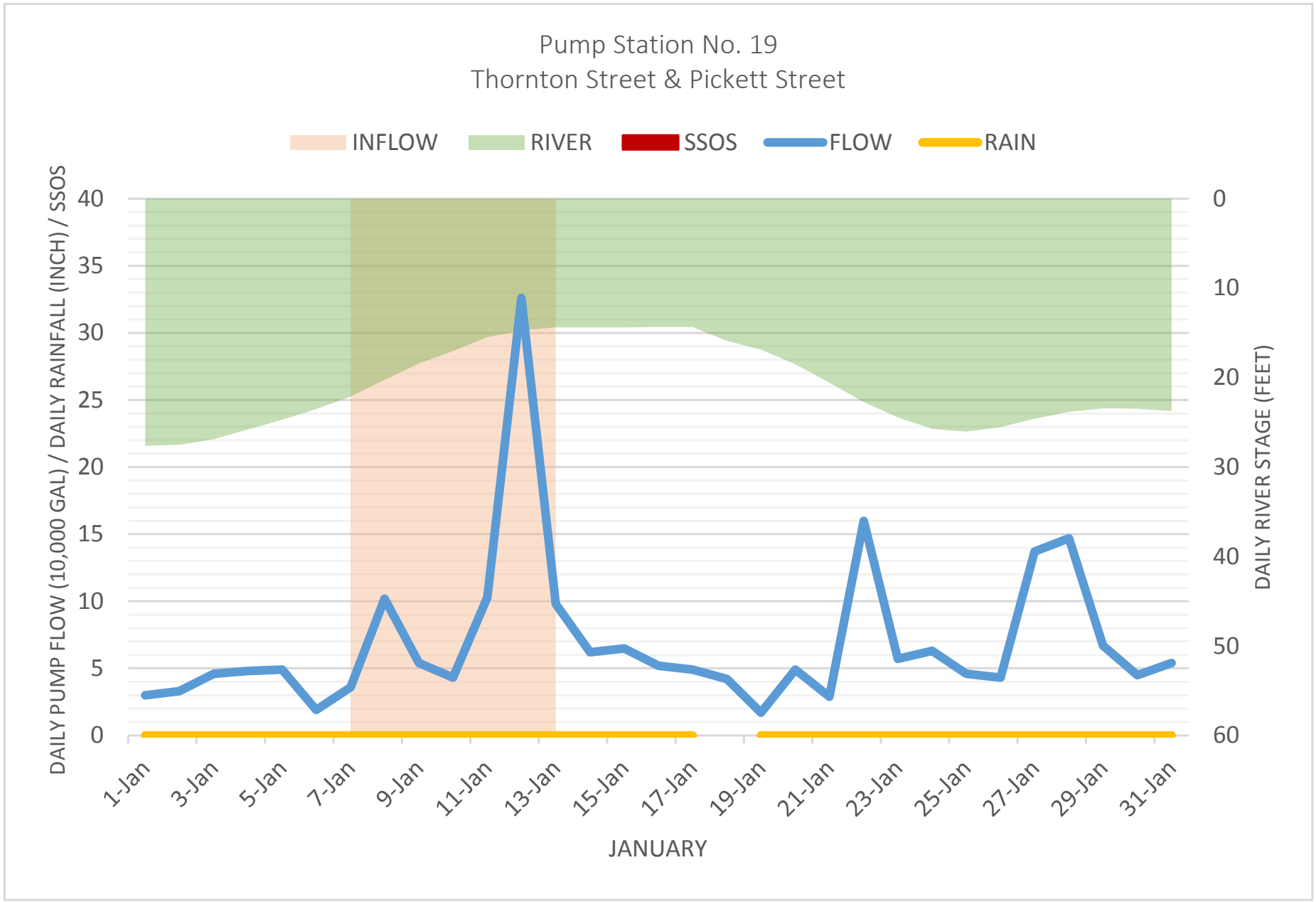
	feet	miles	diameter	inch-miles	
10" GRAVITY	1678	0.32	10	3.17803	
laterals	0	0.00	6	0	
TOTAL PIPE	1678			**3.17803**	**total inch-miles in system**
		maximum average infiltration	inch-miles		
		9,785.7143	3.18	**3079.176**	**total gpd/idm**

Inflow

	feet	miles	diameter	inch-miles	
10" GRAVITY	1678	0.32	10	3.17803	
laterals	0	0.00	6	0	
total pipe	1678			**3.17803**	**total inch-miles in system**
		maximum average inflow	inch-miles		
		93,785.7143	3.18	**29510.64**	**total gpd/idm**

APPENDIX 56

MS31-A/PS19 GRAPHS


Pump Station No. 19
Thornton Street & Pickett Street
INFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
0
10
20
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40
50
60
1-Jan
3-Jan
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7-Jan
9-Jan
11-Jan
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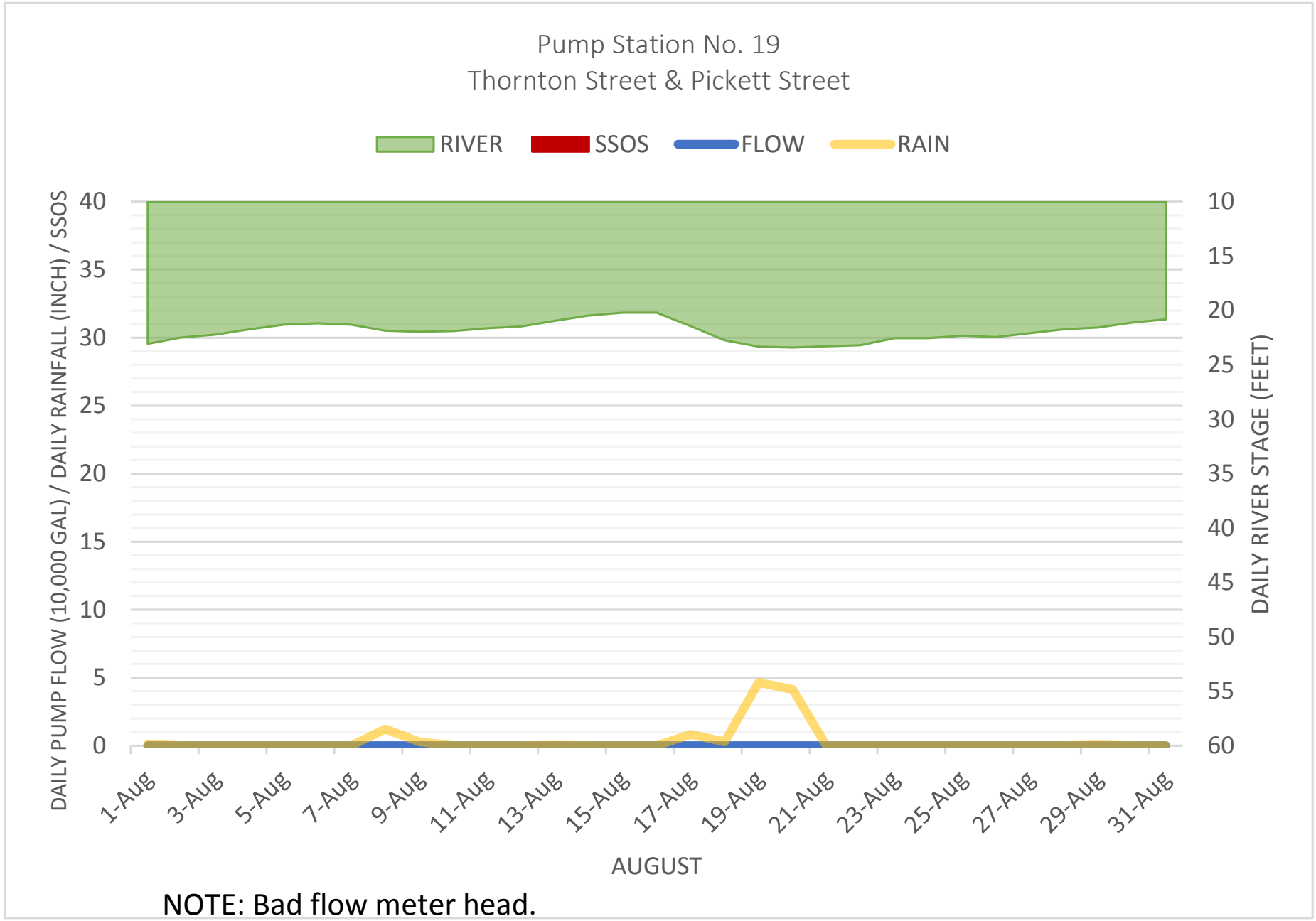
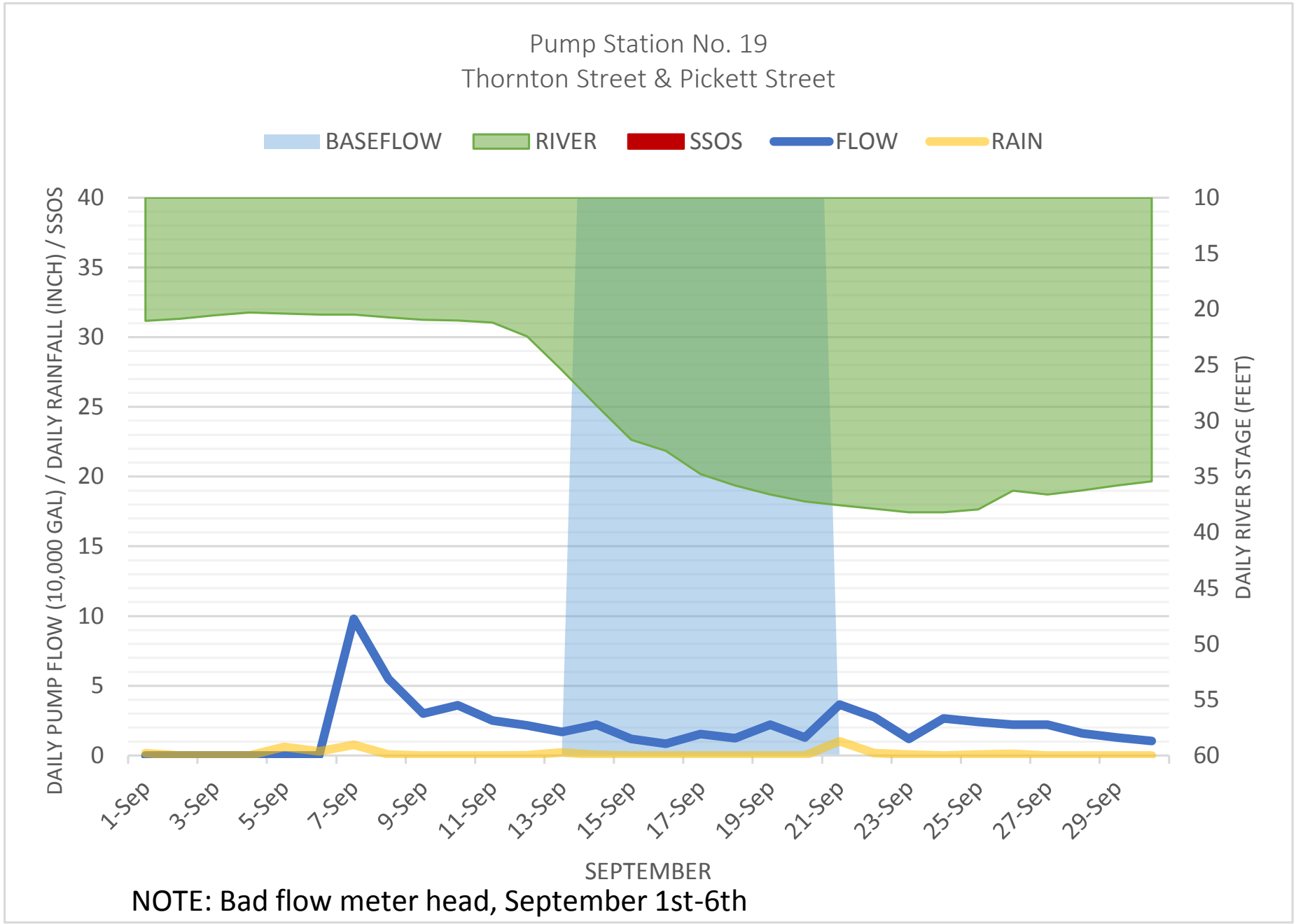
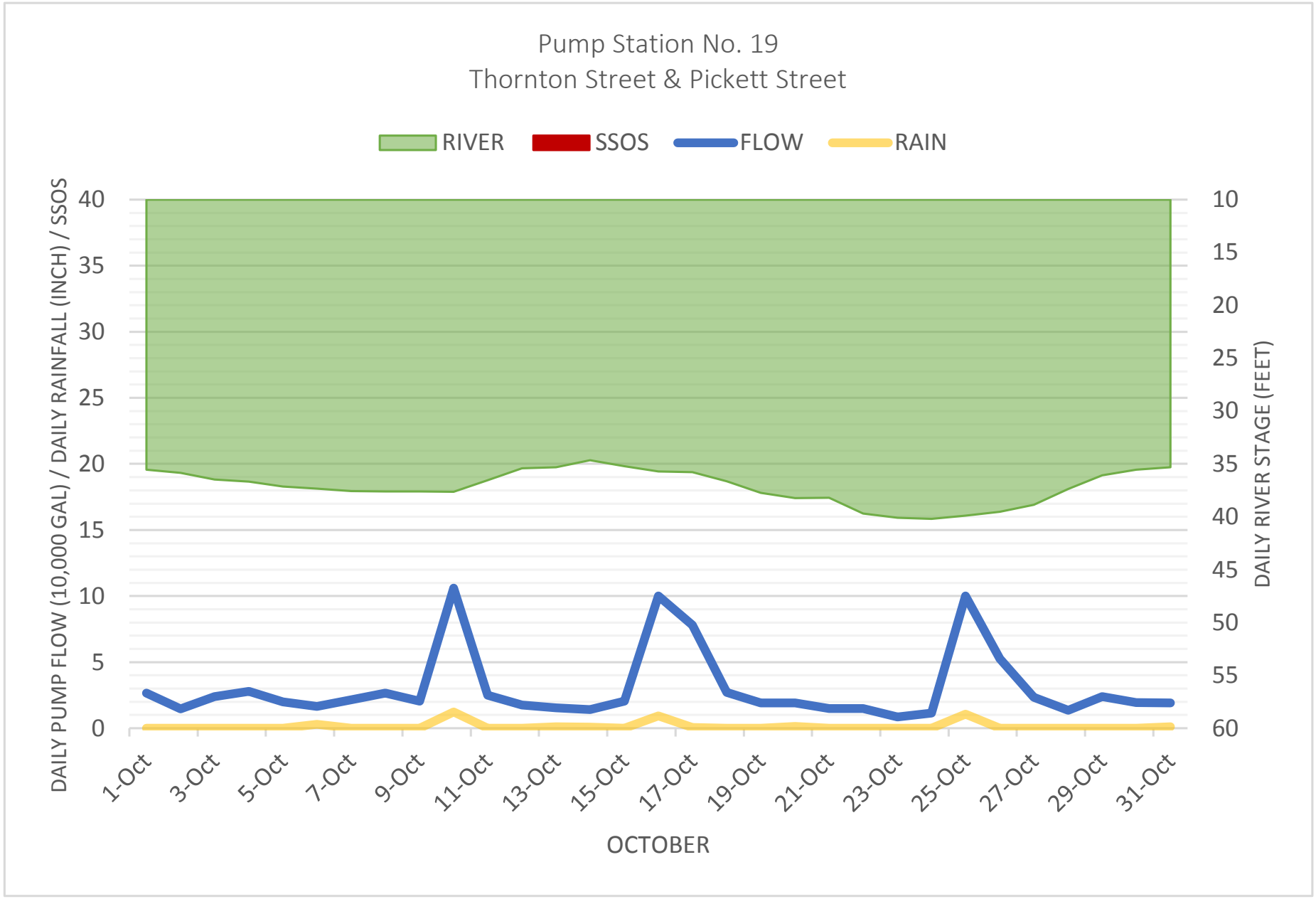
29-Jan
31-Jan
JANUARY



NOTE: Bad flow meter head.



NOTE: Bad flow meter head, September 1st-6th


Pump Station No. 19
Thornton Street & Pickett Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
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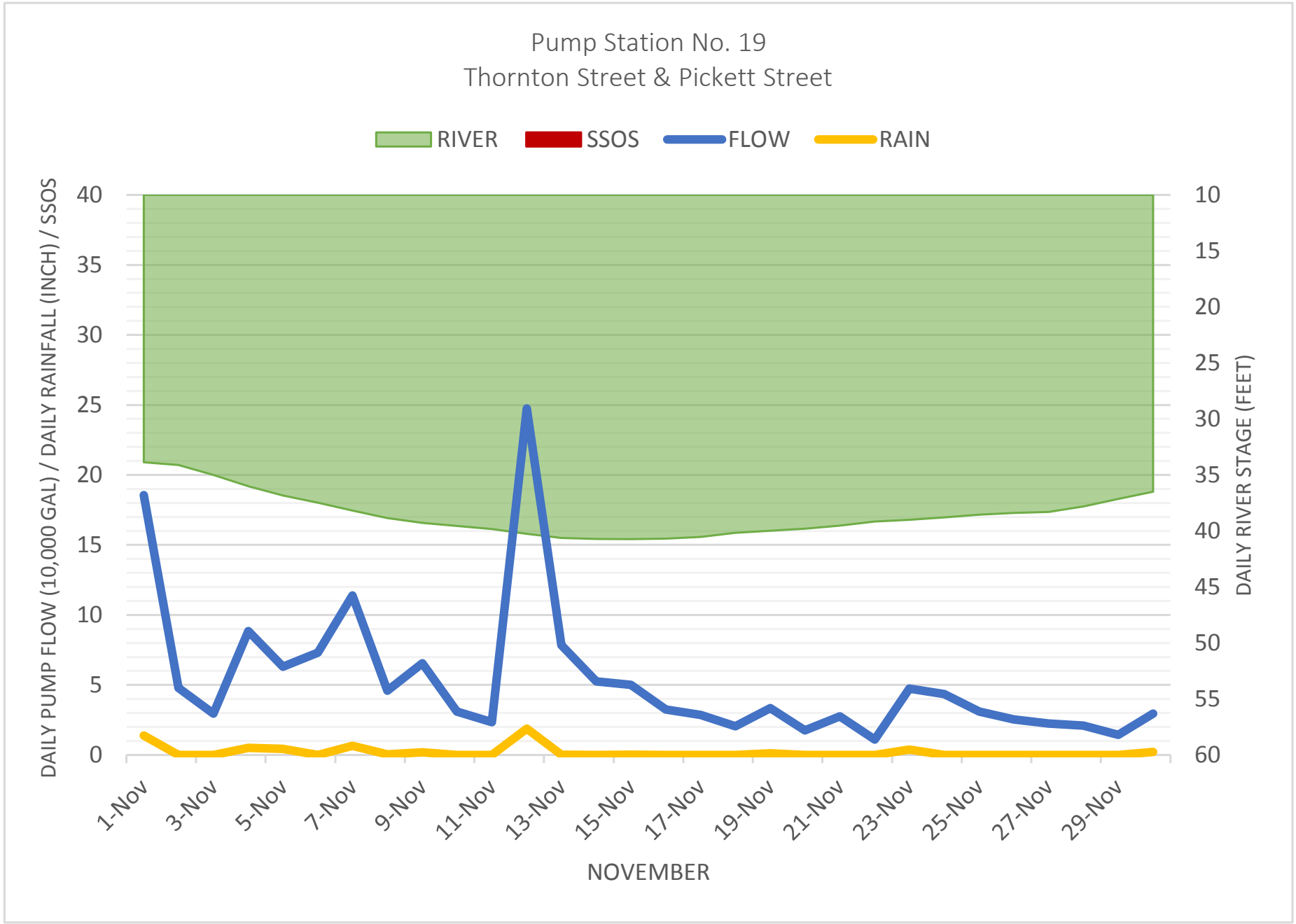
29-Oct
31-Oct
OCTOBER


Pump Station No. 19
Thornton Street & Pickett Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
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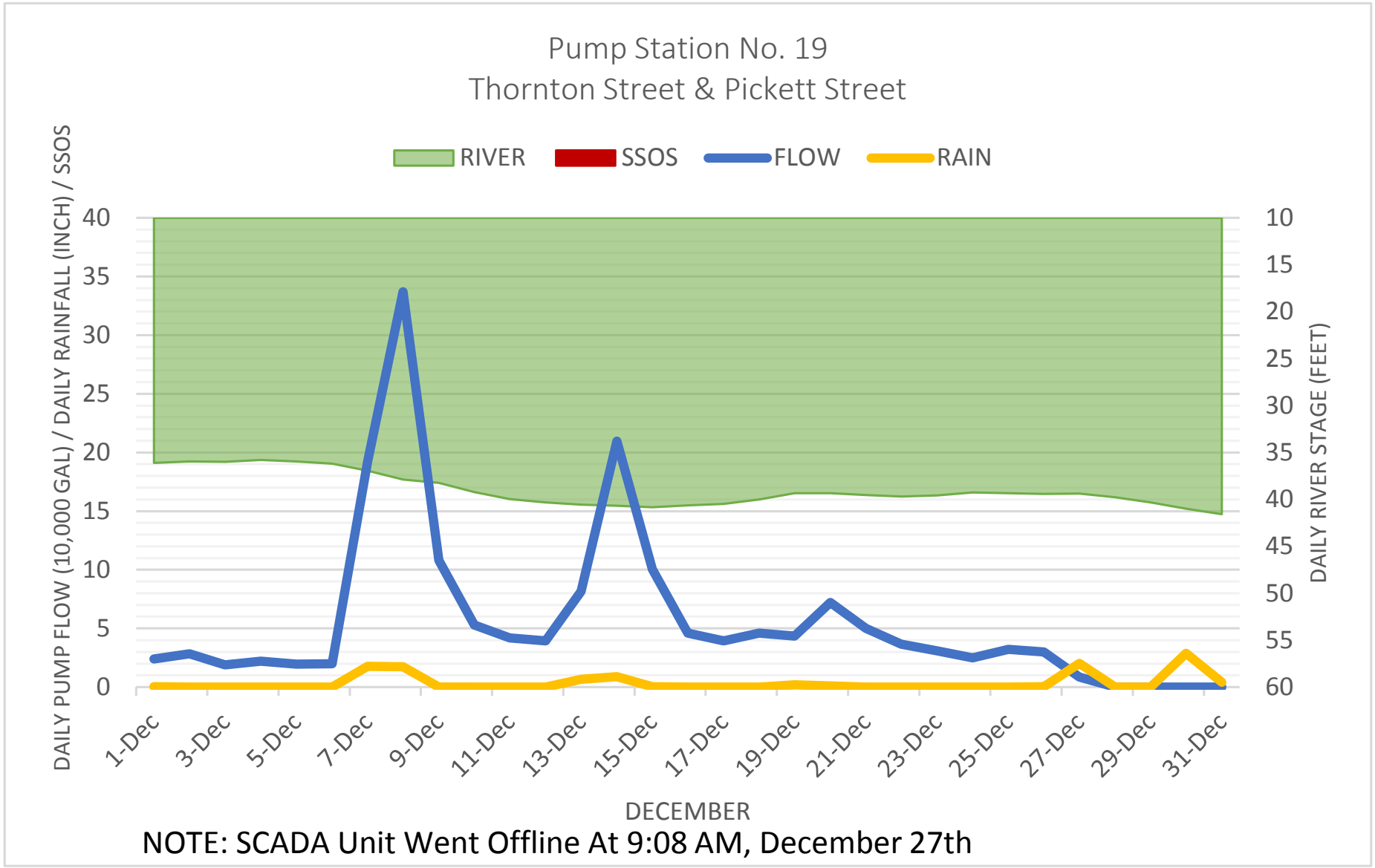
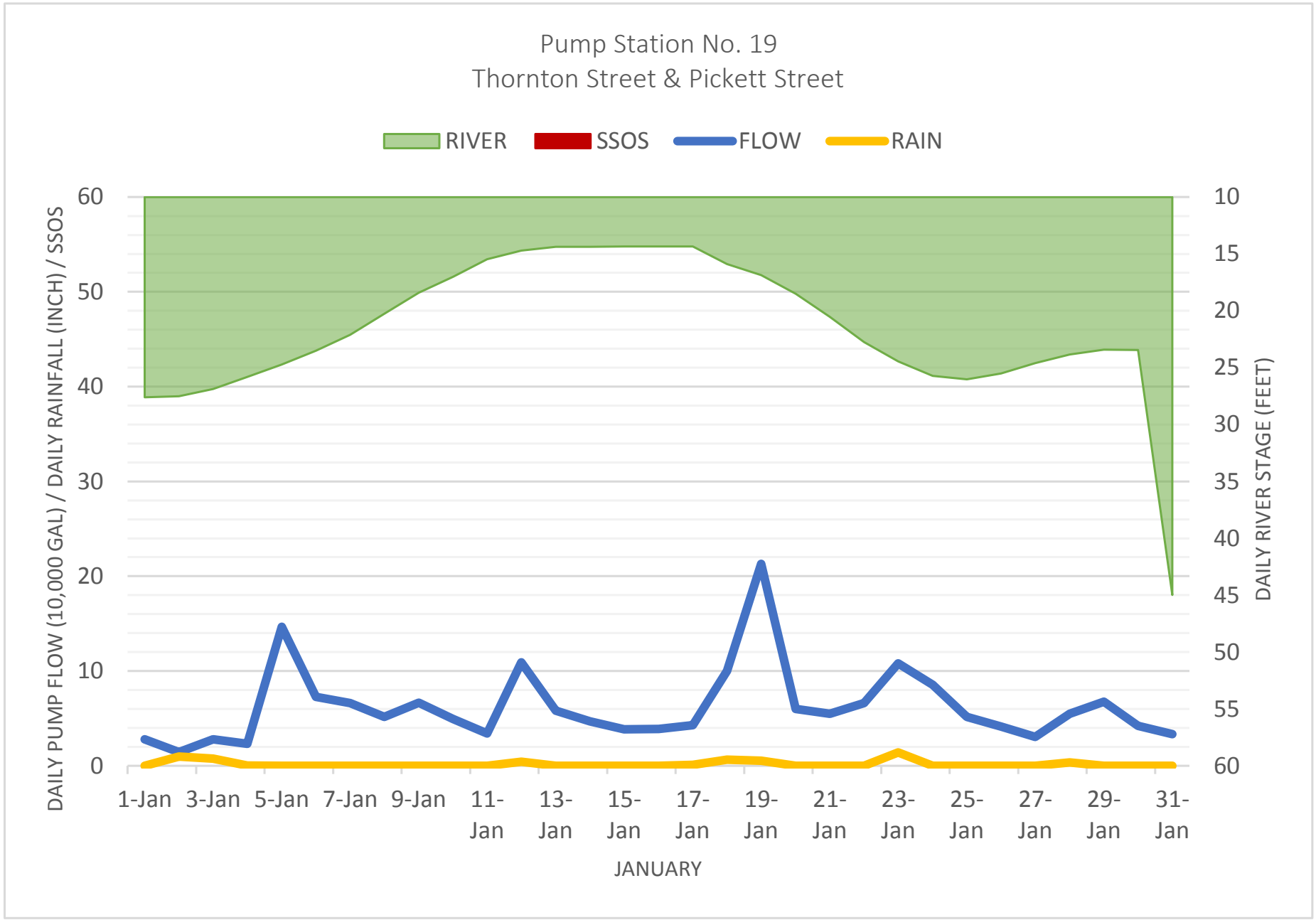
NOVEMBER



NOTE: SCADA Unit Went Offline At 9:08 AM, December 27th


Pump Station No. 19
Thornton Street & Pickett Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
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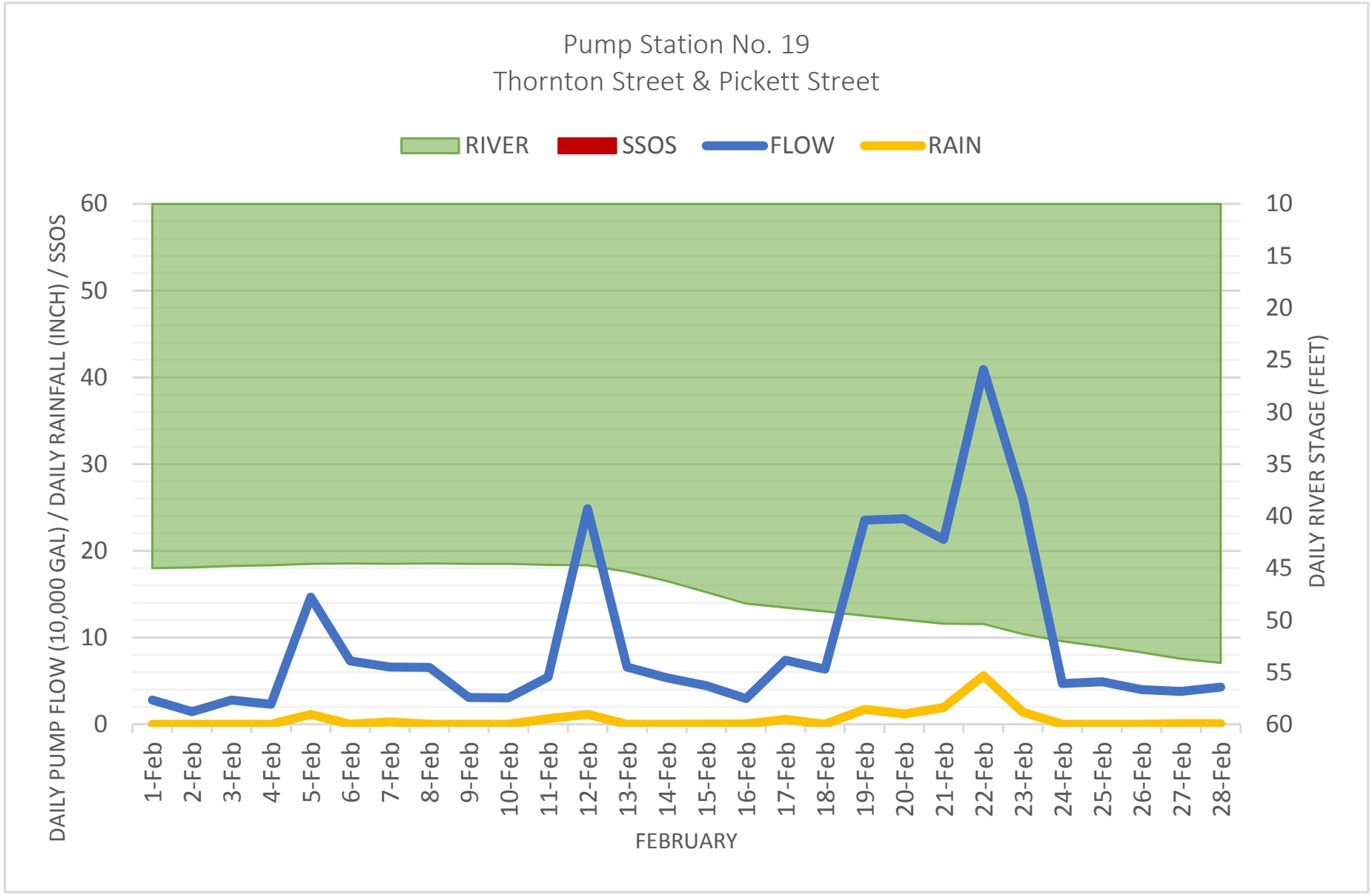
31-Jan
JANUARY


Pump Station No. 19
Thornton Street & Pickett Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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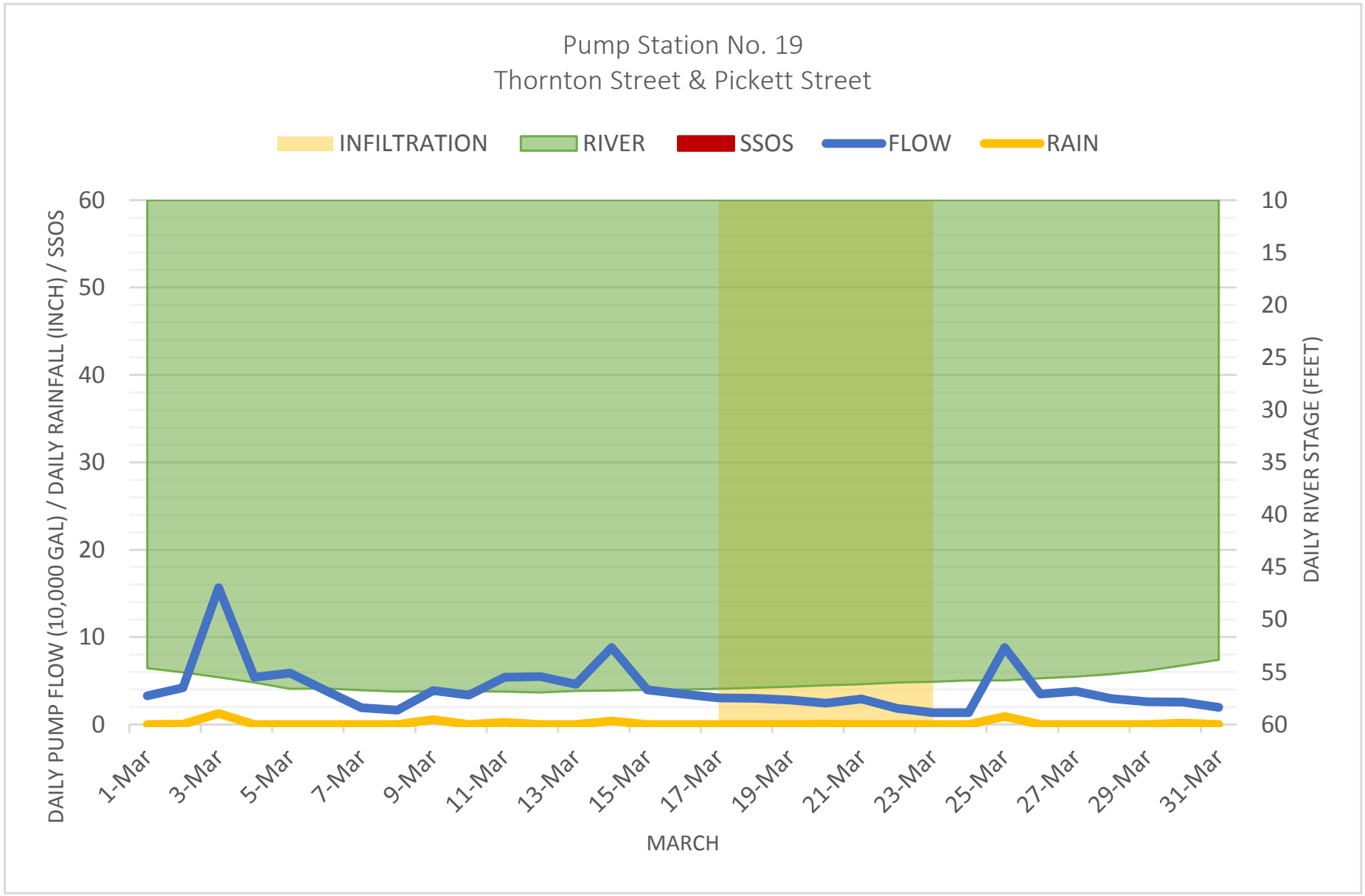
28-Feb
FEBRUARY


Pump Station No. 19
Thornton Street & Pickett Street
INFILTRATION
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
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60
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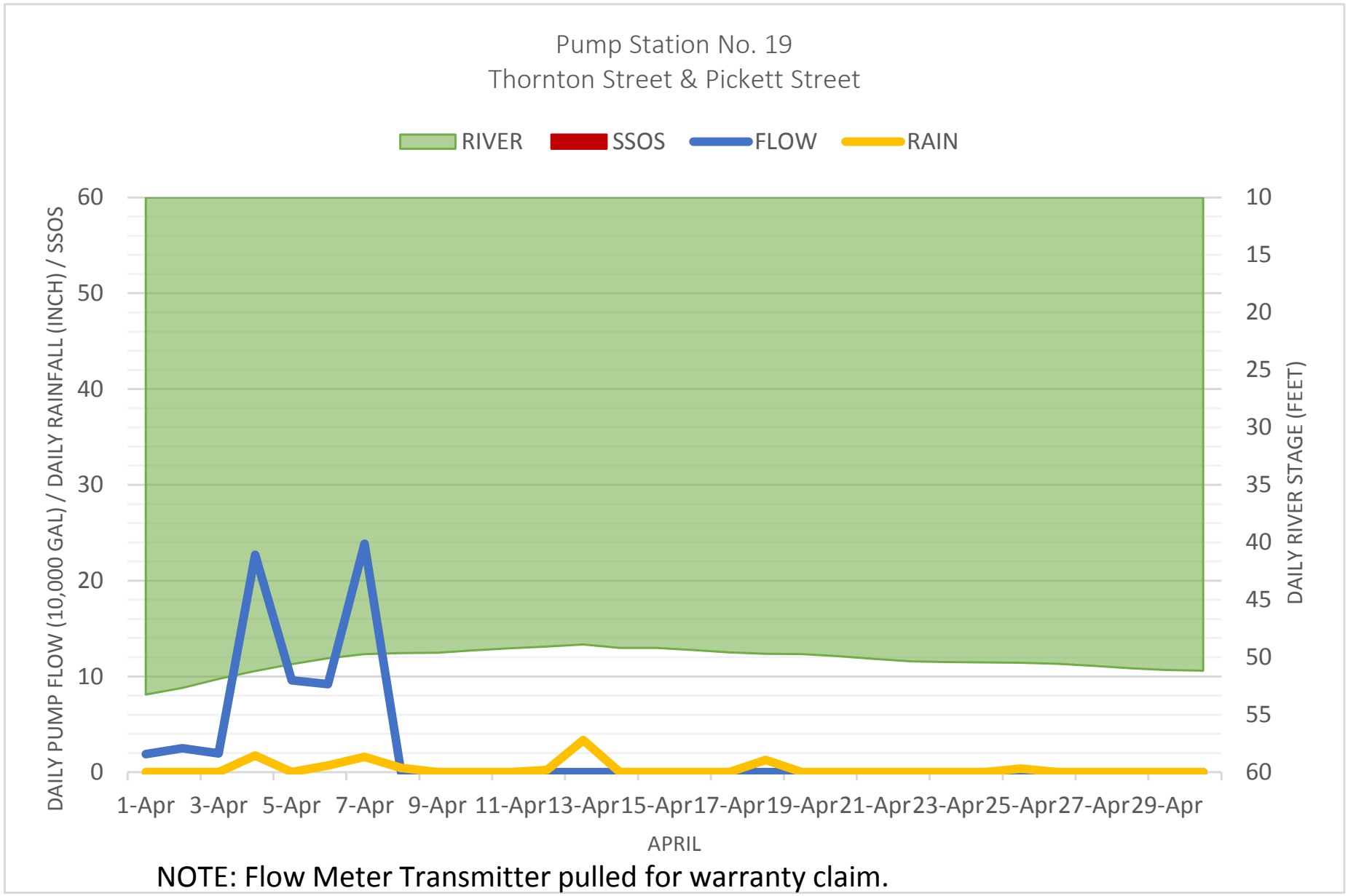
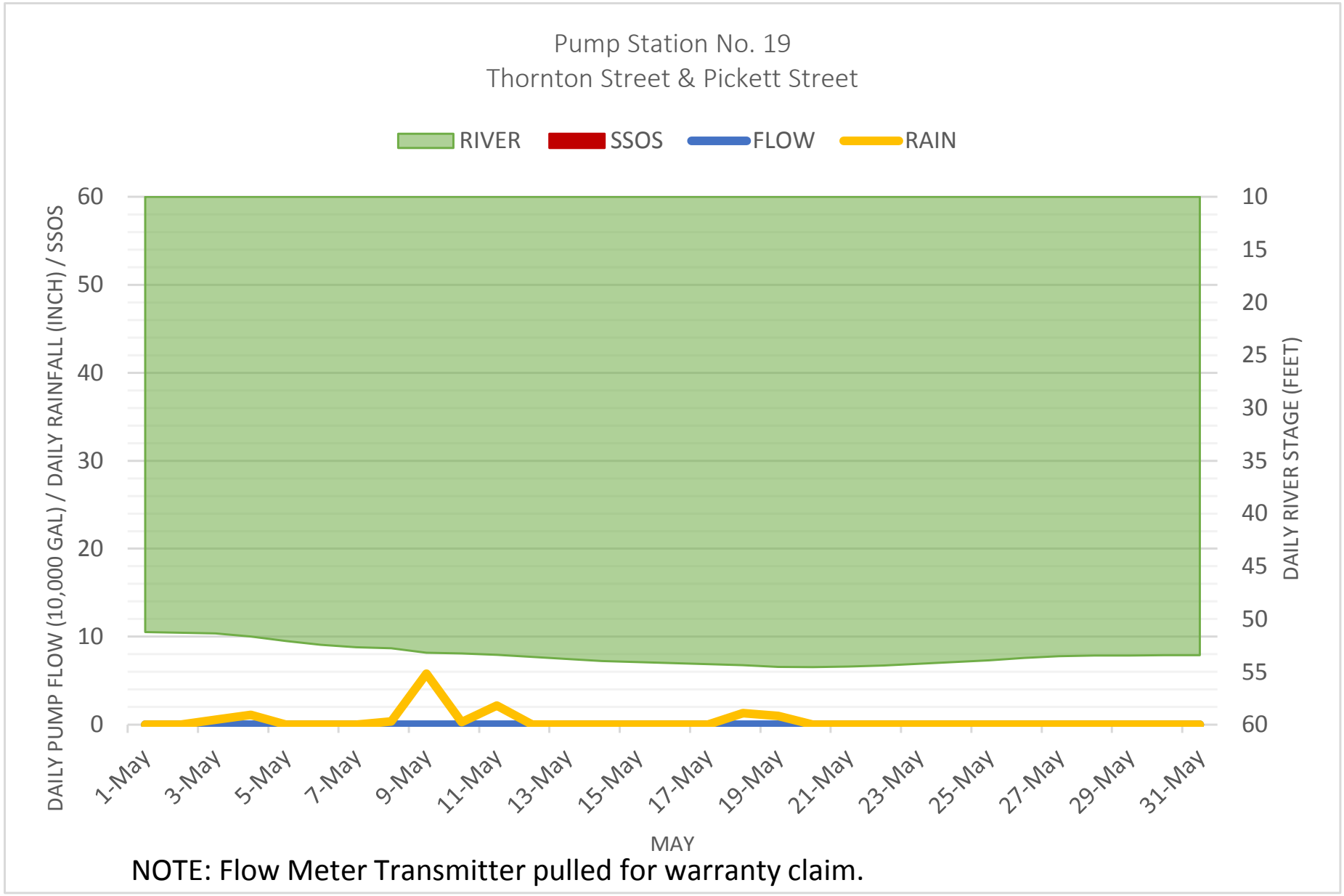
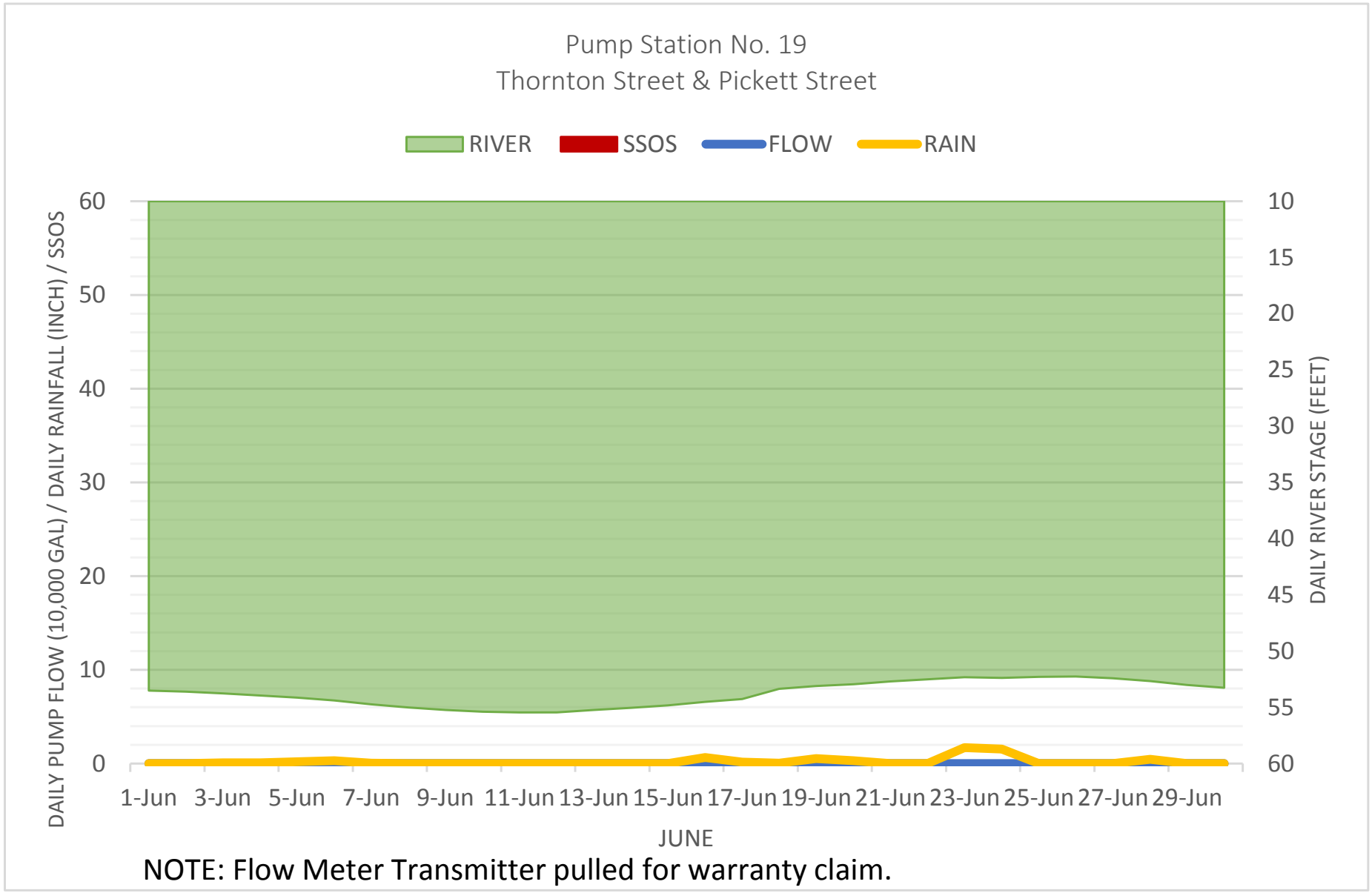
MARCH



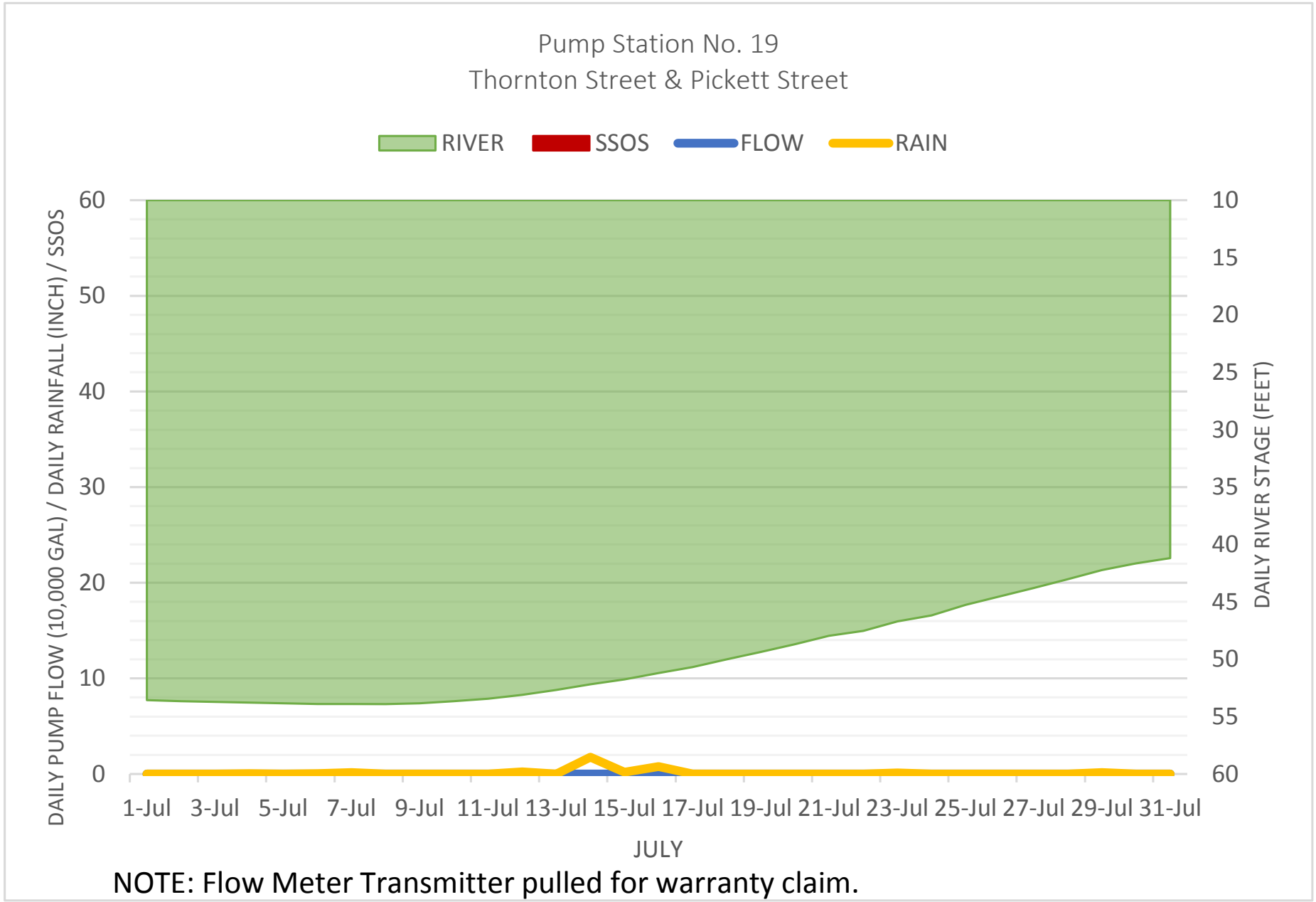
NOTE: Flow Meter Transmitter pulled for warranty claim.



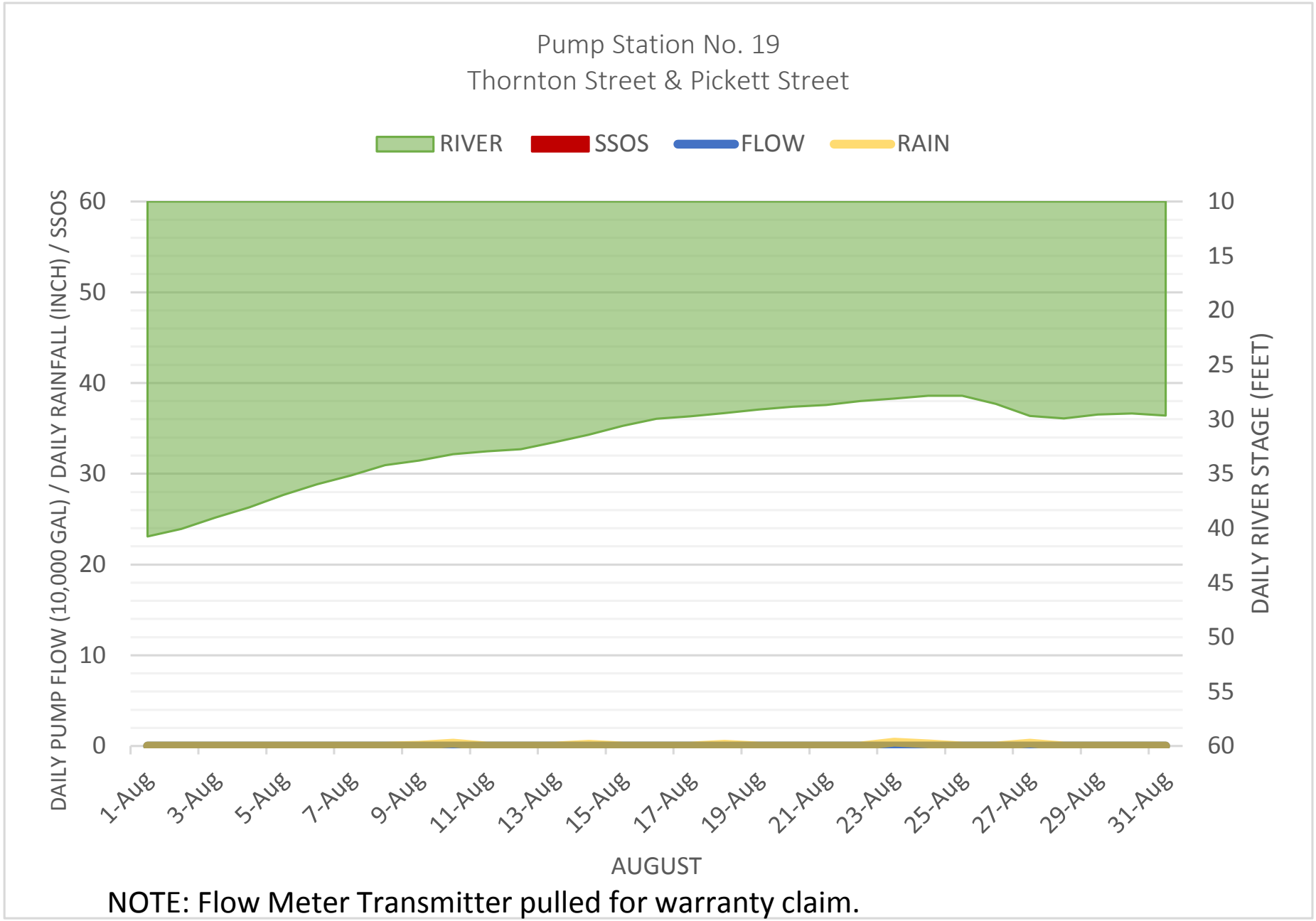
NOTE: Flow Meter Transmitter pulled for warranty claim.



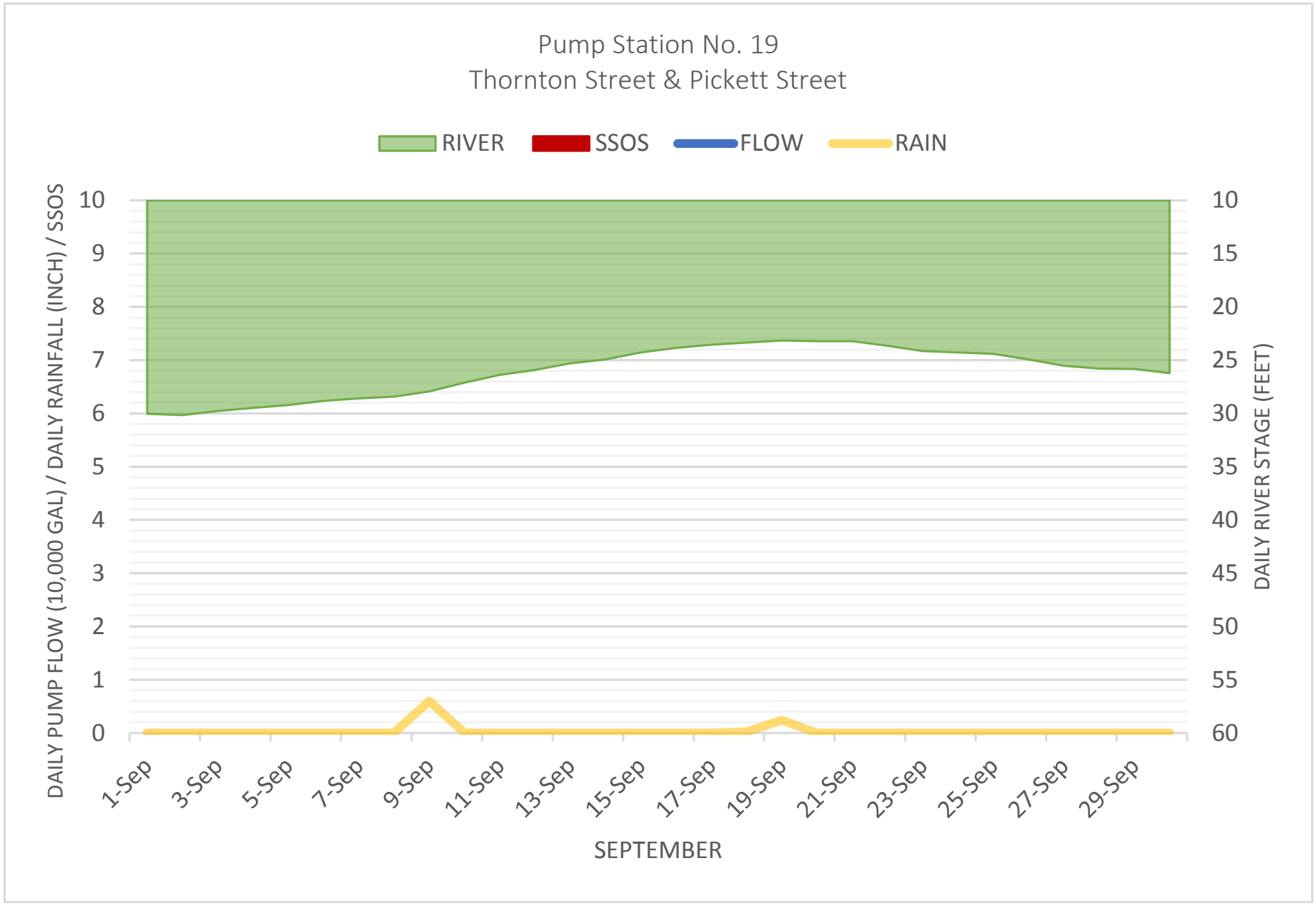
NOTE: Flow Meter Transmitter pulled for warranty claim.

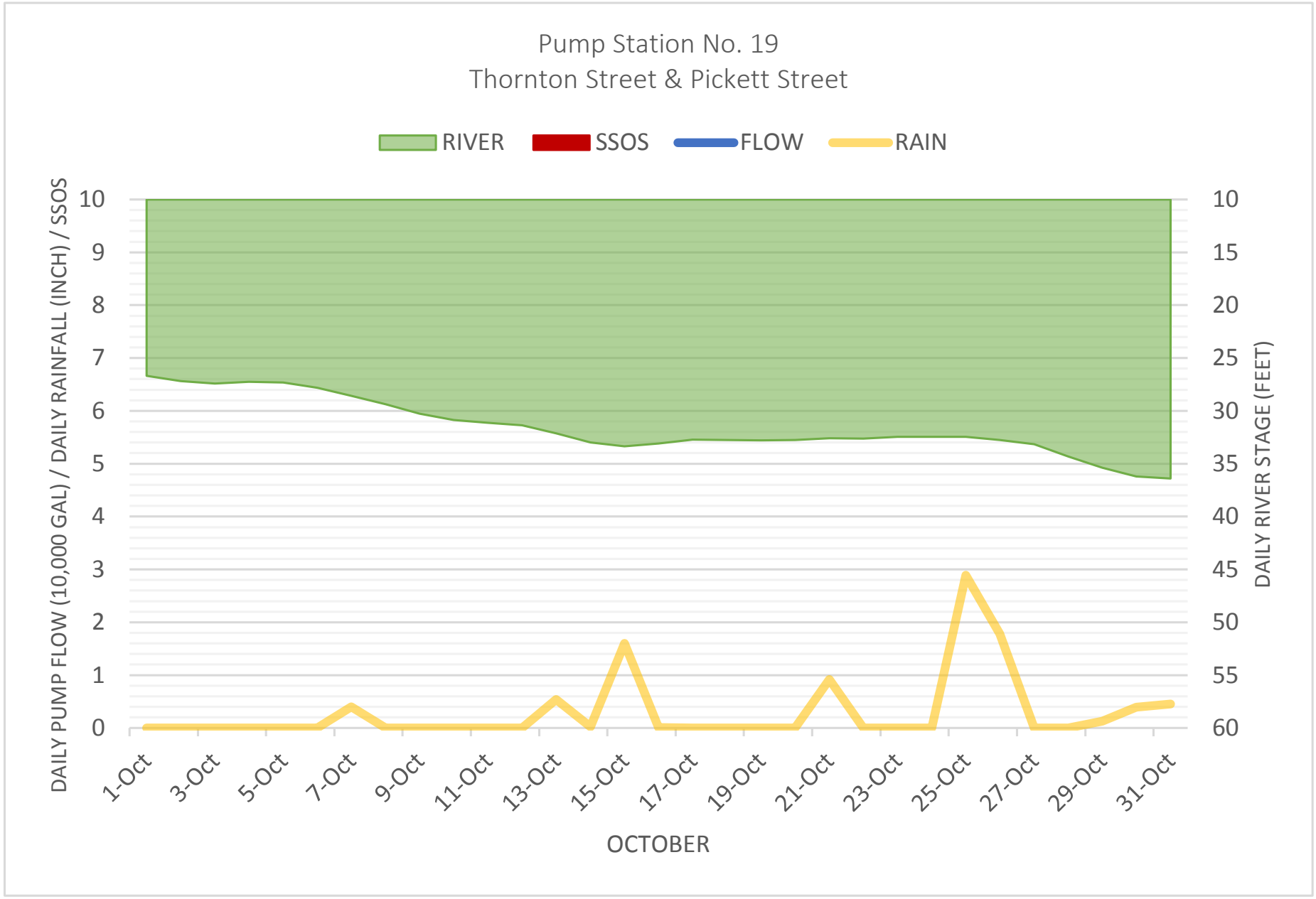


NOTE: Flow Meter Transmitter pulled for warranty claim.



NOTE: Flow Meter Transmitter pulled for warranty claim.


Pump Station No. 19
Thornton Street & Pickett Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
10
9
8
7
6
5
4
3
2
1
0
10
15
20
25
30
35
40
45
50
55
60
1-Sep
3-Sep
5-Sep
7-Sep
9-Sep
11-Sep
13-Sep
15-Sep
17-Sep
19-Sep
21-Sep
23-Sep
25-Sep
27-Sep
29-Sep
SEPTEMBER


Pump Station No. 19
Thornton Street & Pickett Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
10
9
8
7
6
5
4
3
2
1
0
10
15
20
25
30
35
40
45
50
55
60
1-Oct
3-Oct
5-Oct
7-Oct
9-Oct
11-Oct
13-Oct
15-Oct
17-Oct
19-Oct
21-Oct
23-Oct
25-Oct
27-Oct
29-Oct
31-Oct
OCTOBER

APPENDIX 57

MS31-B/PS51 I/I WORKSHEET

MS31-B/PS51
INFLOW & INFILTRATION WORKSHEET

Infiltration

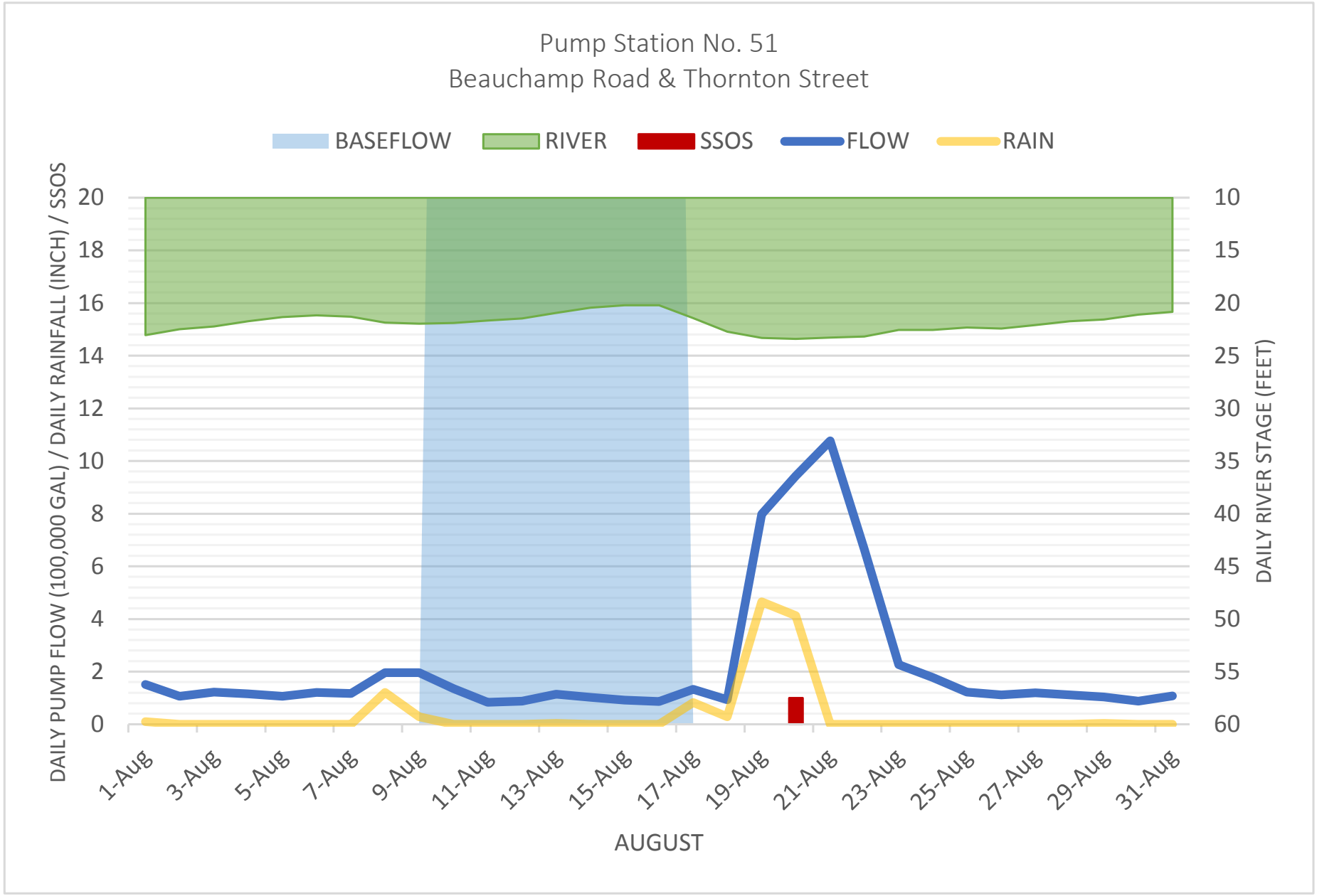
	feet	miles	diameter	inch-miles	
10" GRAVITY	2866.5	0.54	10	5.428977	
laterals	941	0.18	4	0.712879	
TOTAL PIPE	3807.5			**6.141856**	**total inch-miles in system**
		maximum average infiltration	inch-miles		
		392.8571	6.14	**63.96391**	**total gpd/idm**

Inflow

	feet	miles	diameter	inch-miles	
10" GRAVITY	2866.5	0.54	10	5.428977	
laterals	941	0.18	4	0.712879	
total pipe	3807.5			**6.141856**	**total inch-miles in system**
		maximum average inflow	inch-miles		
		65,642.8571	6.14	**10687.79**	**total gpd/idm**

APPENDIX 58

MS31-B/PS51 GRAPHS


Pump Station No. 51
Beauchamp Road & Thornton Street
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
20
18
16
14
12
10
8
6
4
2
0
10
15
20
25
30
35
40
45
50
55
60
1-Aug
3-Aug
5-Aug
7-Aug
9-Aug
11-Aug
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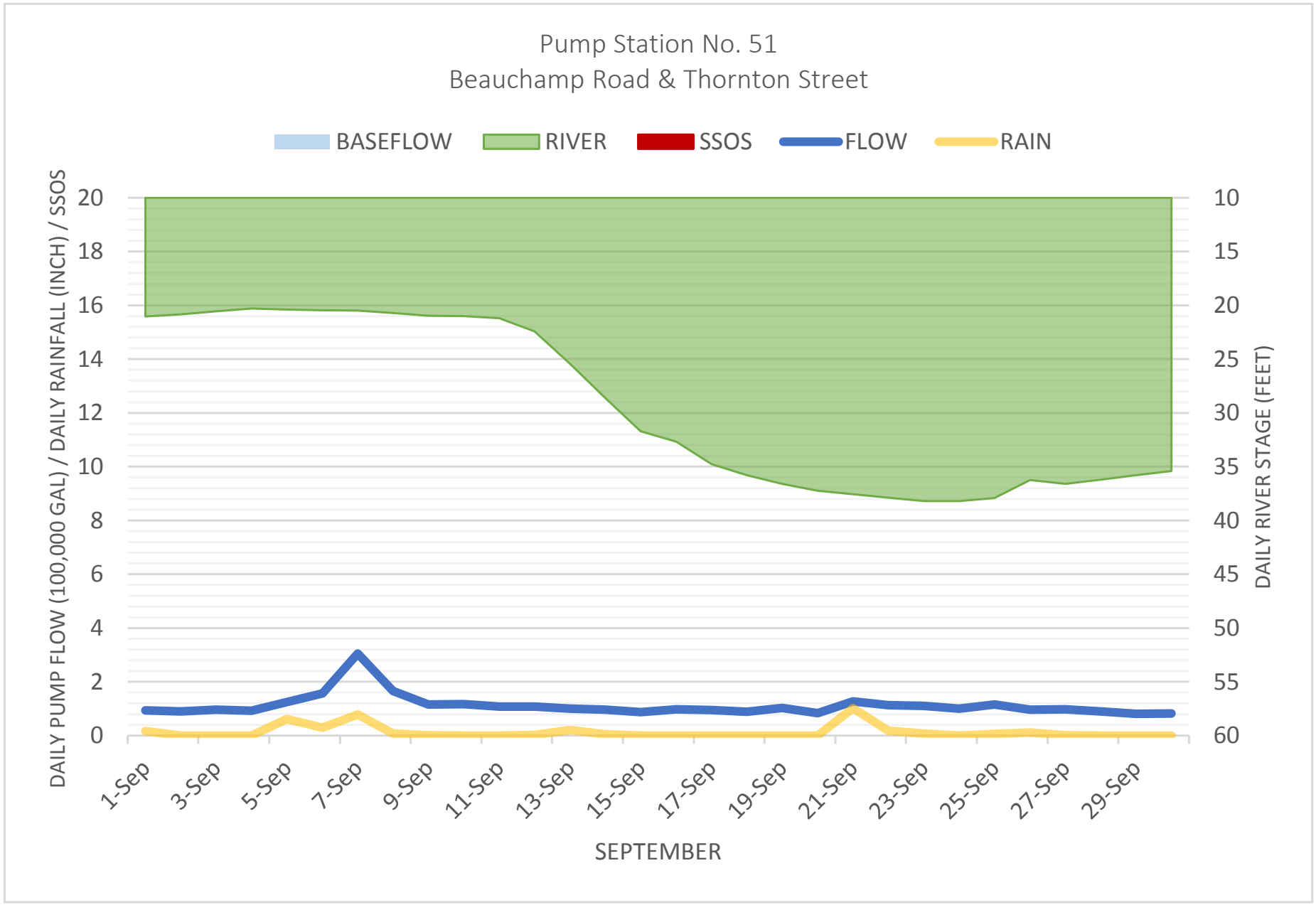
17-Aug
19-Aug
21-Aug
23-Aug
25-Aug
27-Aug
29-Aug
31-Aug
AUGUST


Pump Station No. 51
Beauchamp Road & Thornton Street
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
20
18
16
14
12
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6
4
2
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10
15
20
25
30
35
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60
1-Sep
3-Sep
5-Sep
7-Sep
9-Sep
11-Sep
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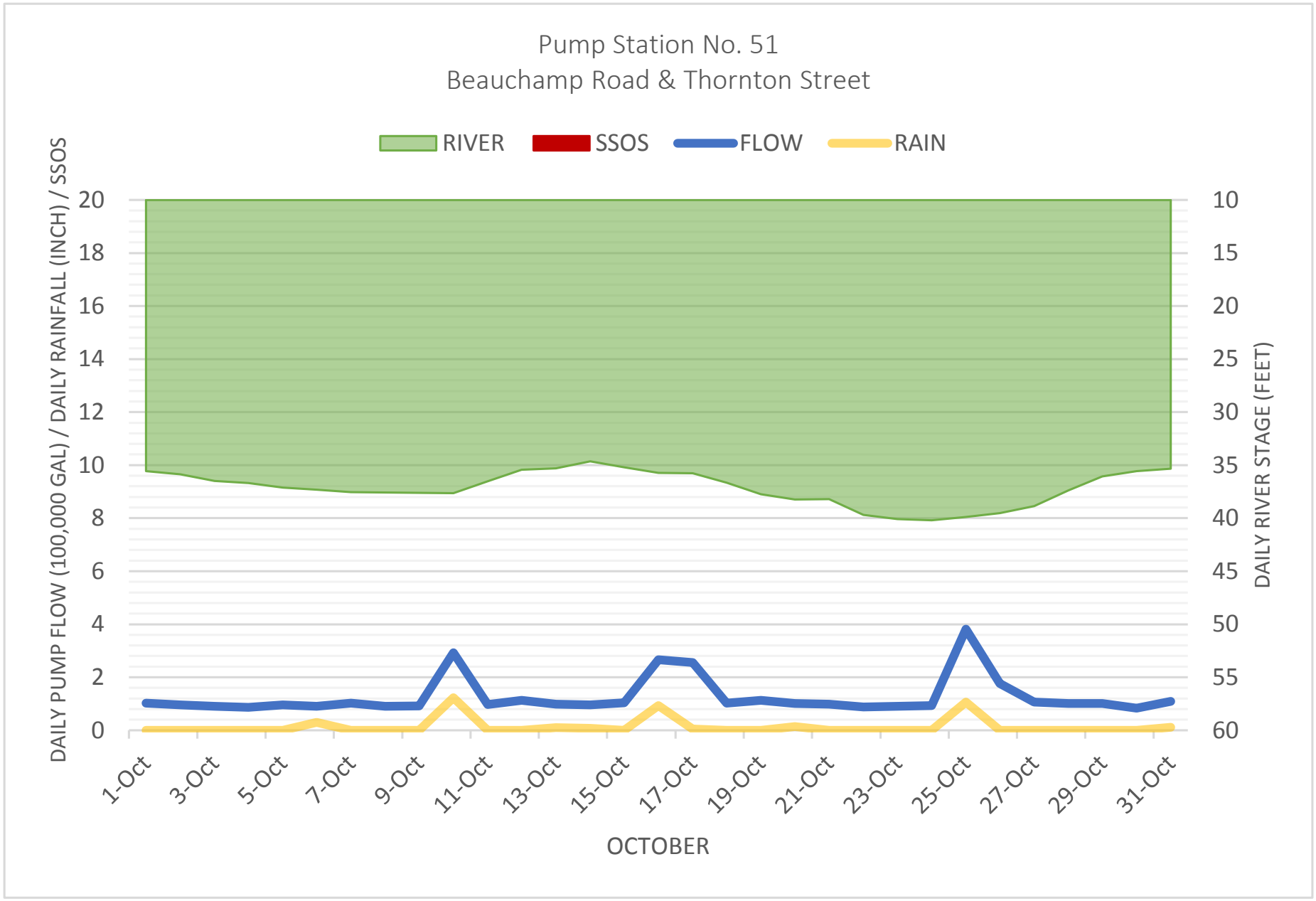
15-Sep
17-Sep
19-Sep
21-Sep
23-Sep
25-Sep
27-Sep
29-Sep
SEPTEMBER


Pump Station No. 51
Beauchamp Road & Thornton Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
20
18
16
14
12
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4
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25
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1-Oct
3-Oct
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7-Oct
9-Oct
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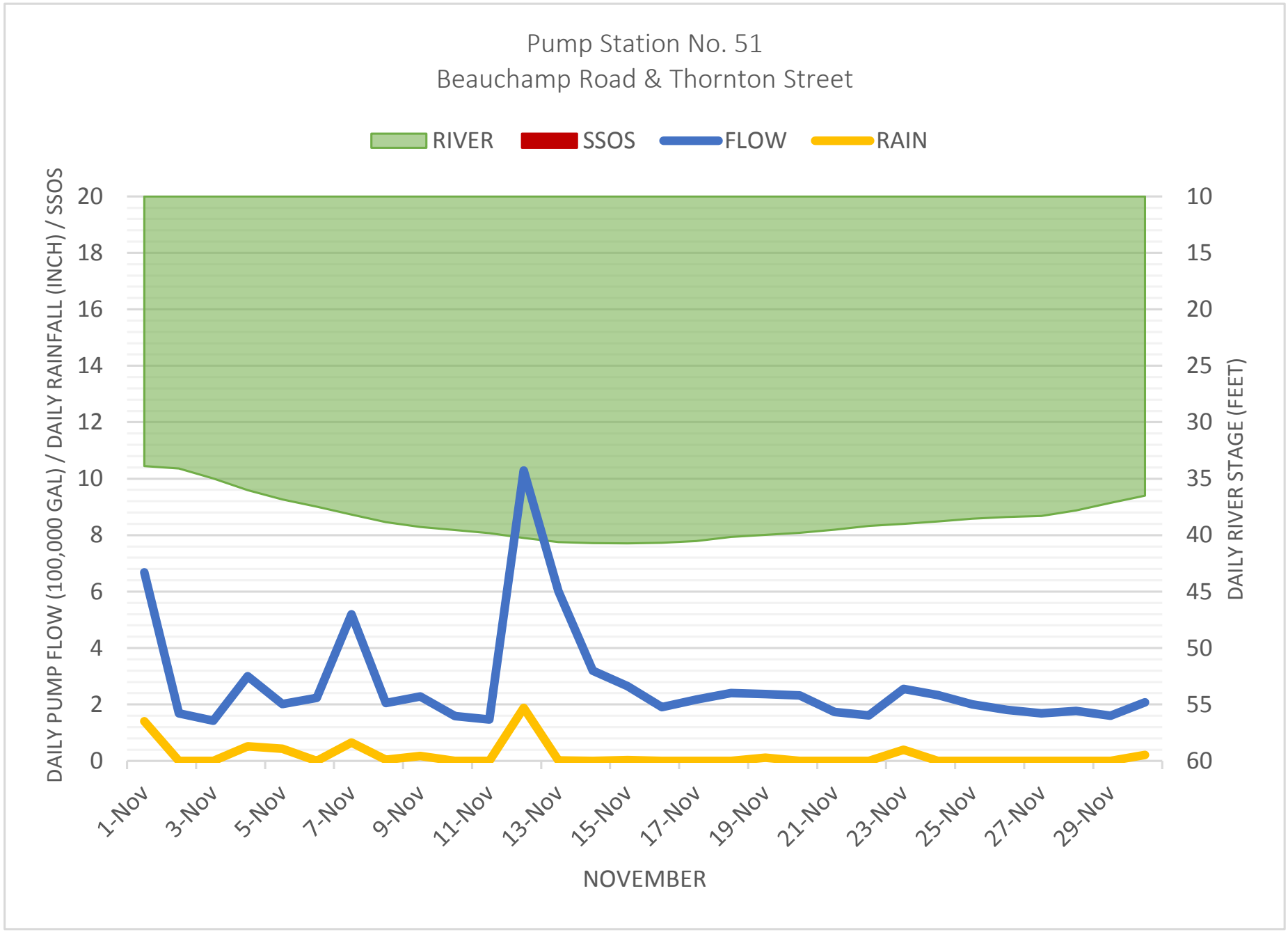
25-Oct
27-Oct
29-Oct
31-Oct
OCTOBER


Pump Station No. 51
Beauchamp Road & Thornton Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
20
18
16
14
12
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1-Nov
3-Nov
5-Nov
7-Nov
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15-Nov
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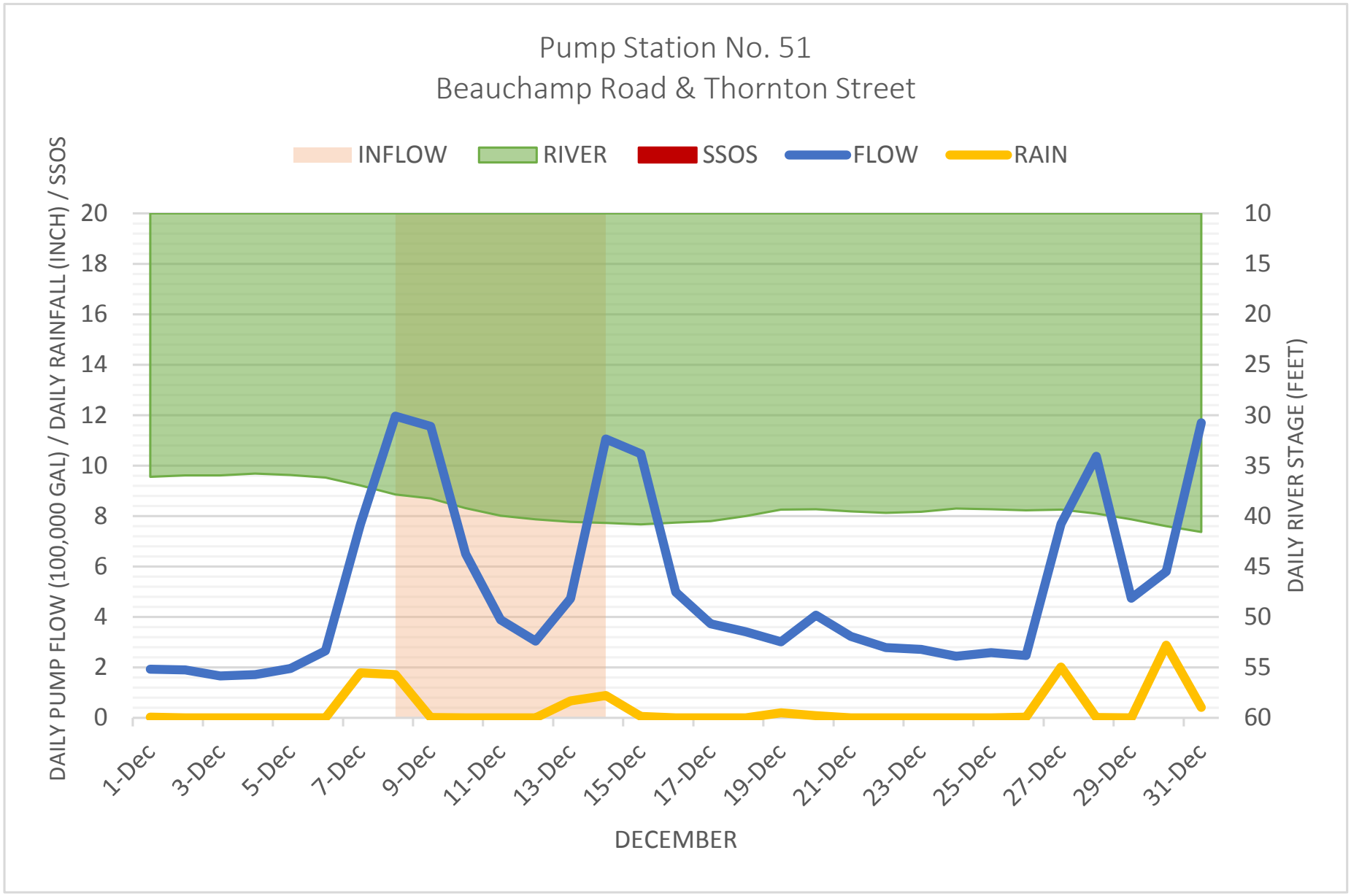
21-Nov
23-Nov
25-Nov
27-Nov
29-Nov
NOVEMBER


Pump Station No. 51
Beauchamp Road & Thornton Street
INFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
20
18
16
14
12
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6
4
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25
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35
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45
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55
60
1-Dec
3-Dec
5-Dec
7-Dec
9-Dec
11-Dec
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17-Dec
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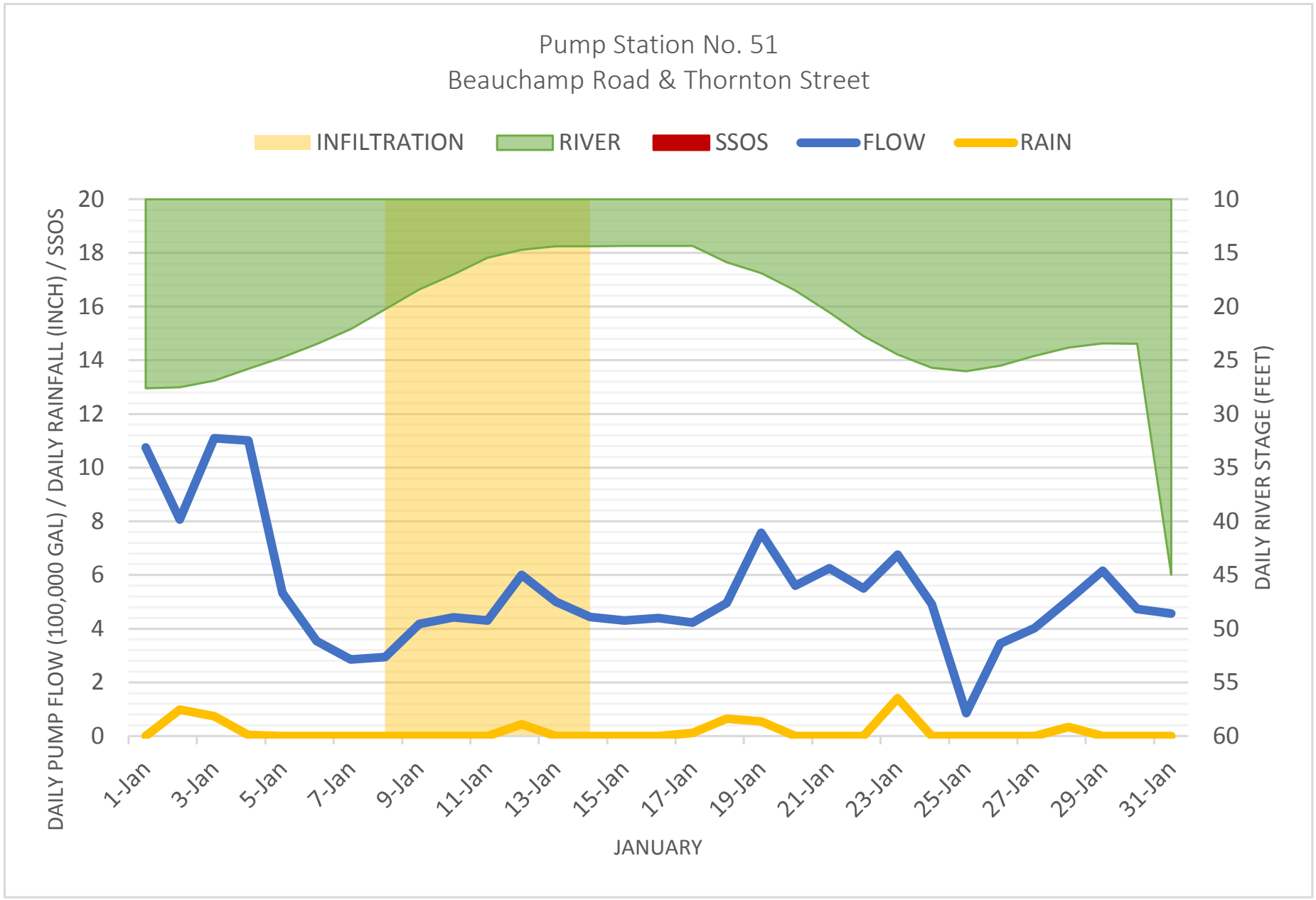
23-Dec
25-Dec
27-Dec
29-Dec
31-Dec
DECEMBER


Pump Station No. 51
Beauchamp Road & Thornton Street
INFILTRATION
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
20
18
16
14
12
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1-Jan
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7-Jan
9-Jan
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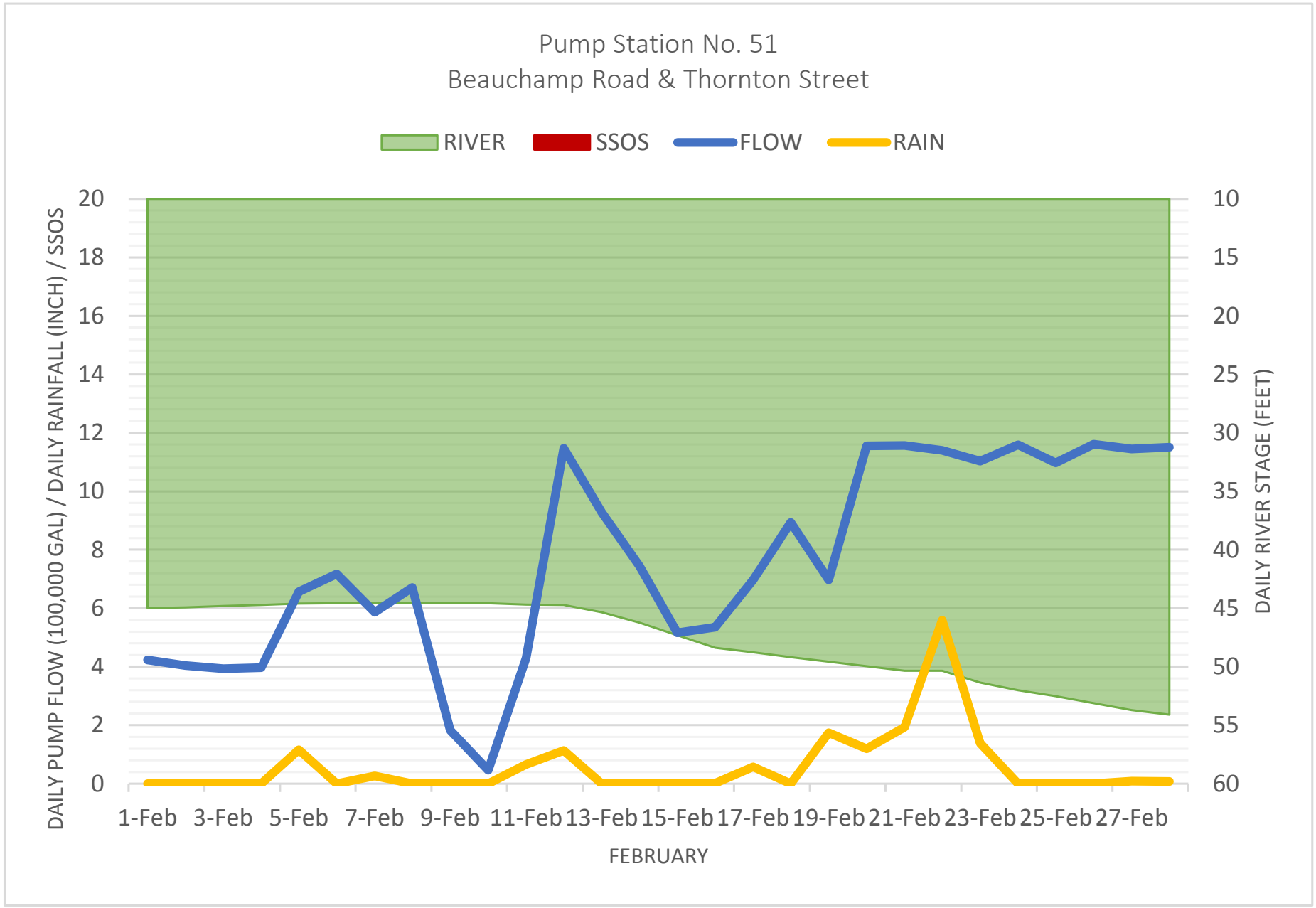
25-Jan
27-Jan
29-Jan
31-Jan
JANUARY


Pump Station No. 51
Beauchamp Road & Thornton Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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1-Feb
3-Feb
5-Feb
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17-Feb
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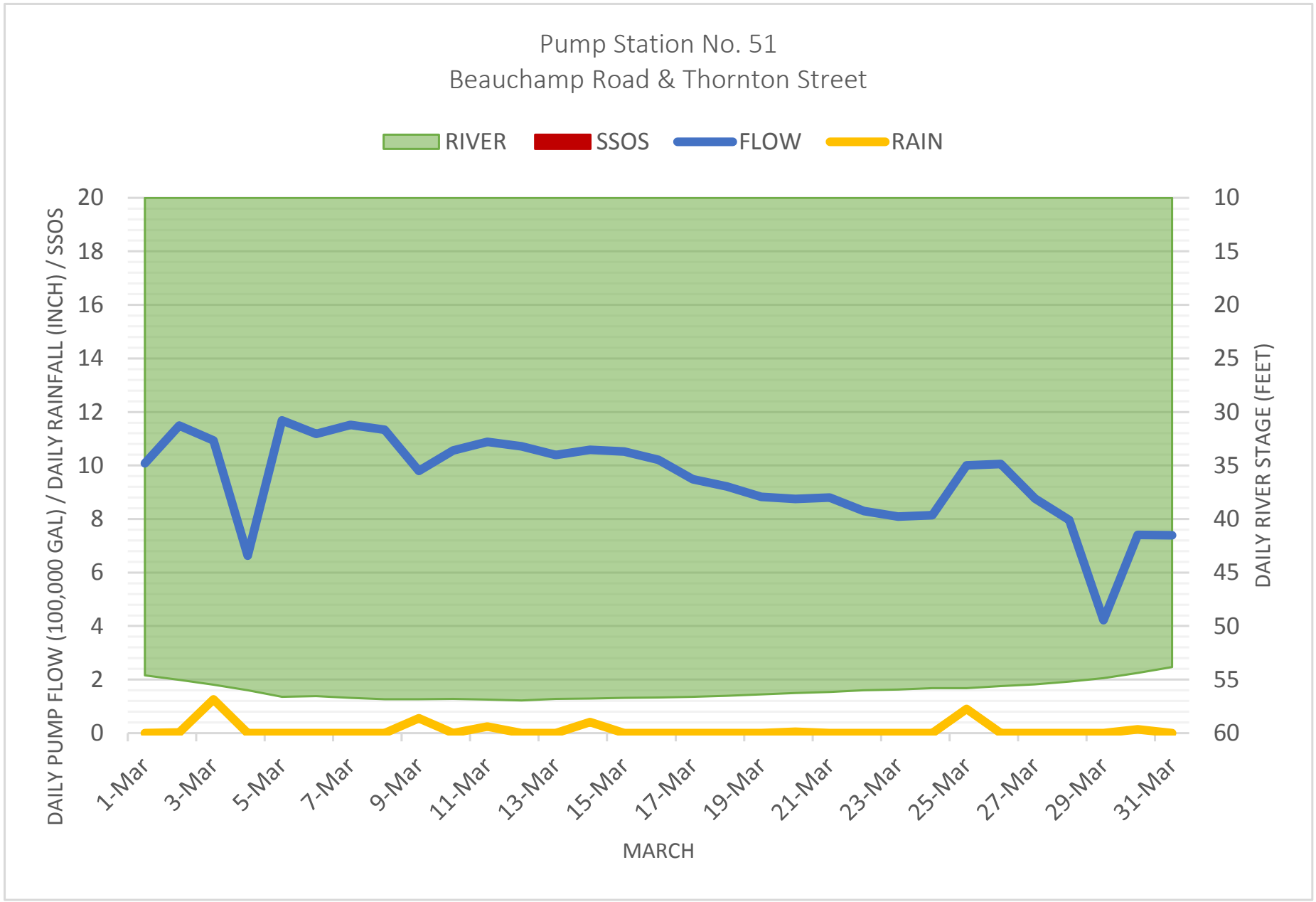
21-Feb
23-Feb
25-Feb
27-Feb
FEBRUARY


Pump Station No. 51
Beauchamp Road & Thornton Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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1-Mar
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7-Mar
9-Mar
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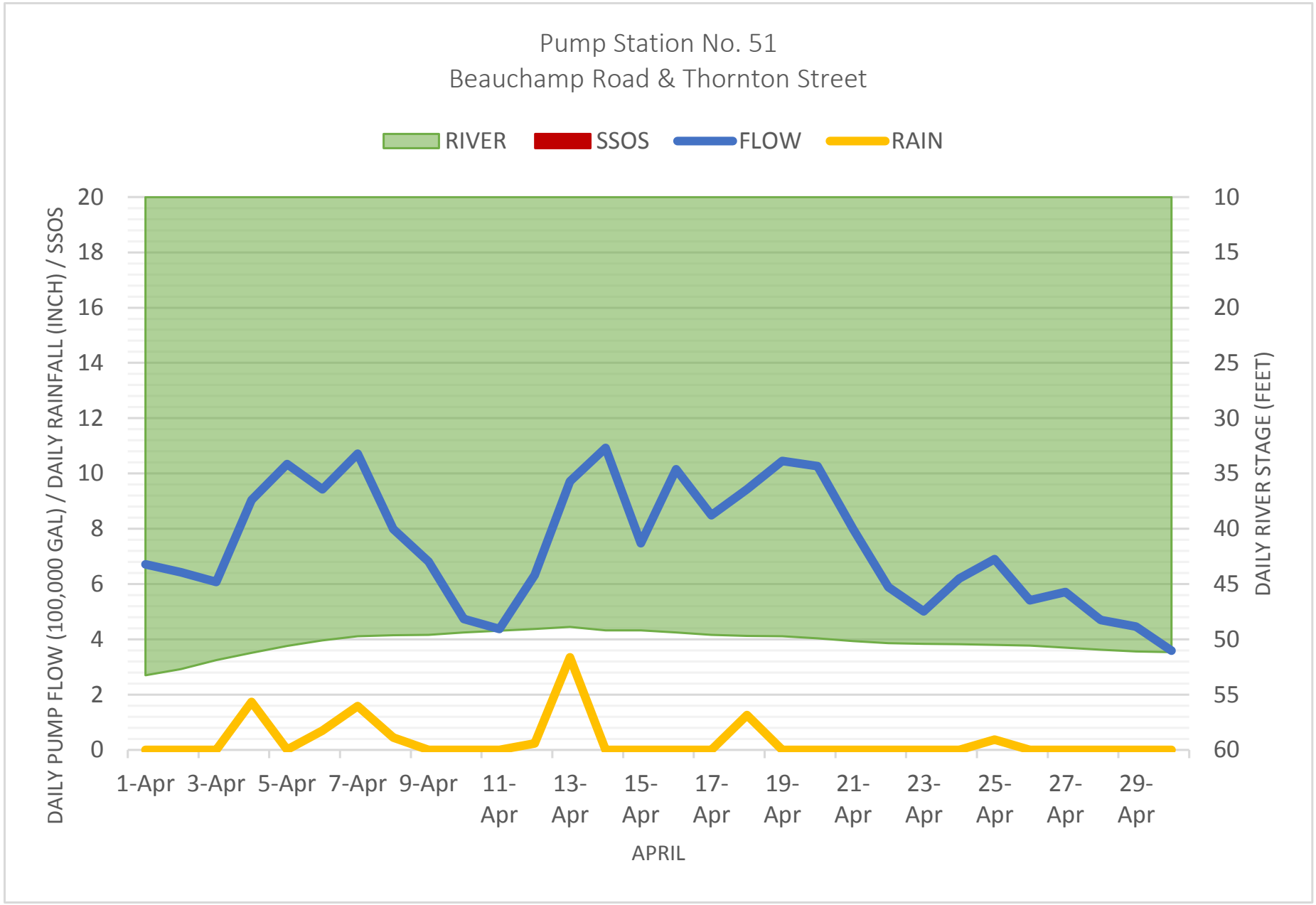
27-Mar
29-Mar
31-Mar
MARCH


Pump Station No. 51
Beauchamp Road & Thornton Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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1-Apr
3-Apr
5-Apr
7-Apr
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23-Apr
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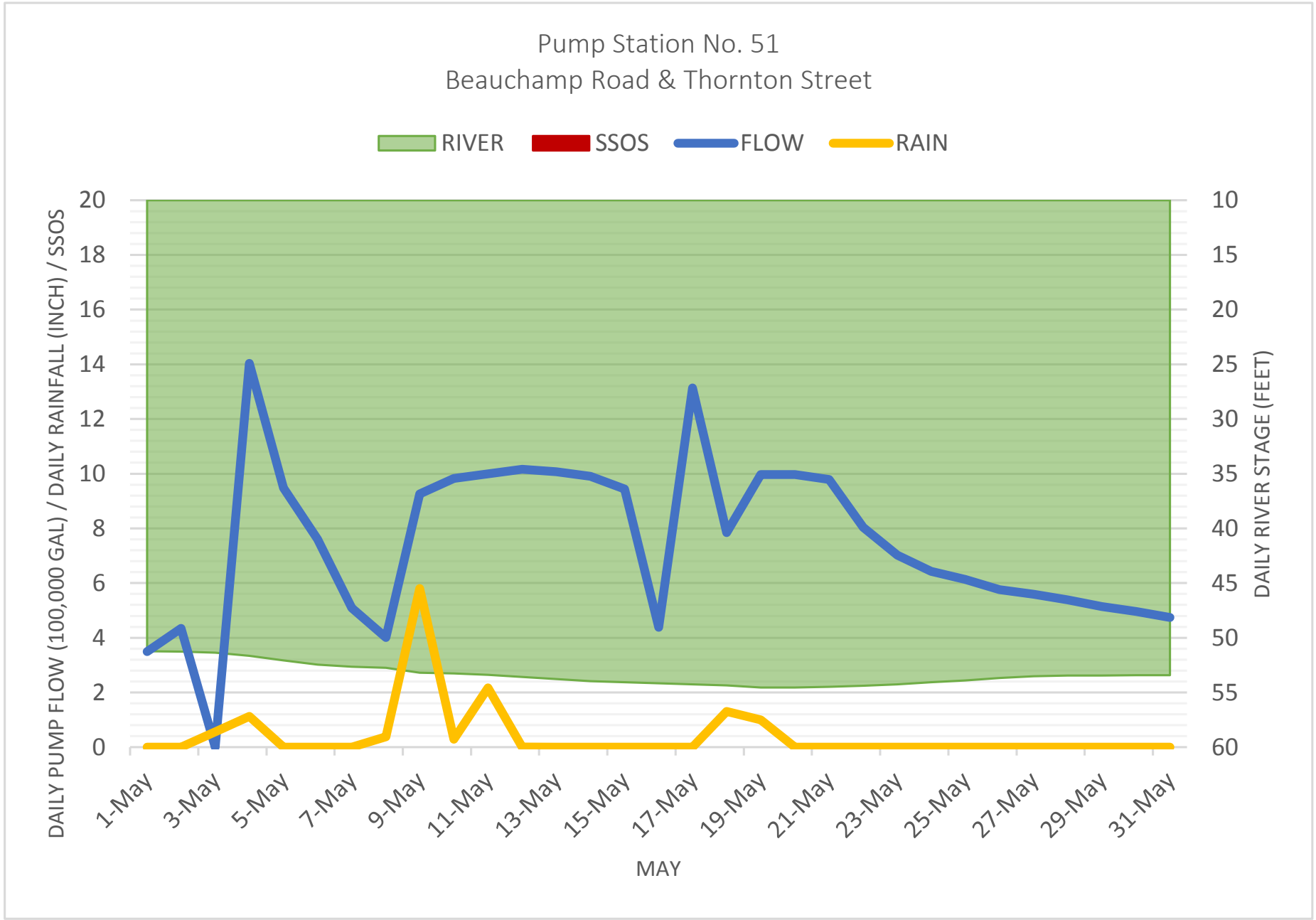
27-Apr
29-Apr
APRIL


Pump Station No. 51
Beauchamp Road & Thornton Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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1-May
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7-May
9-May
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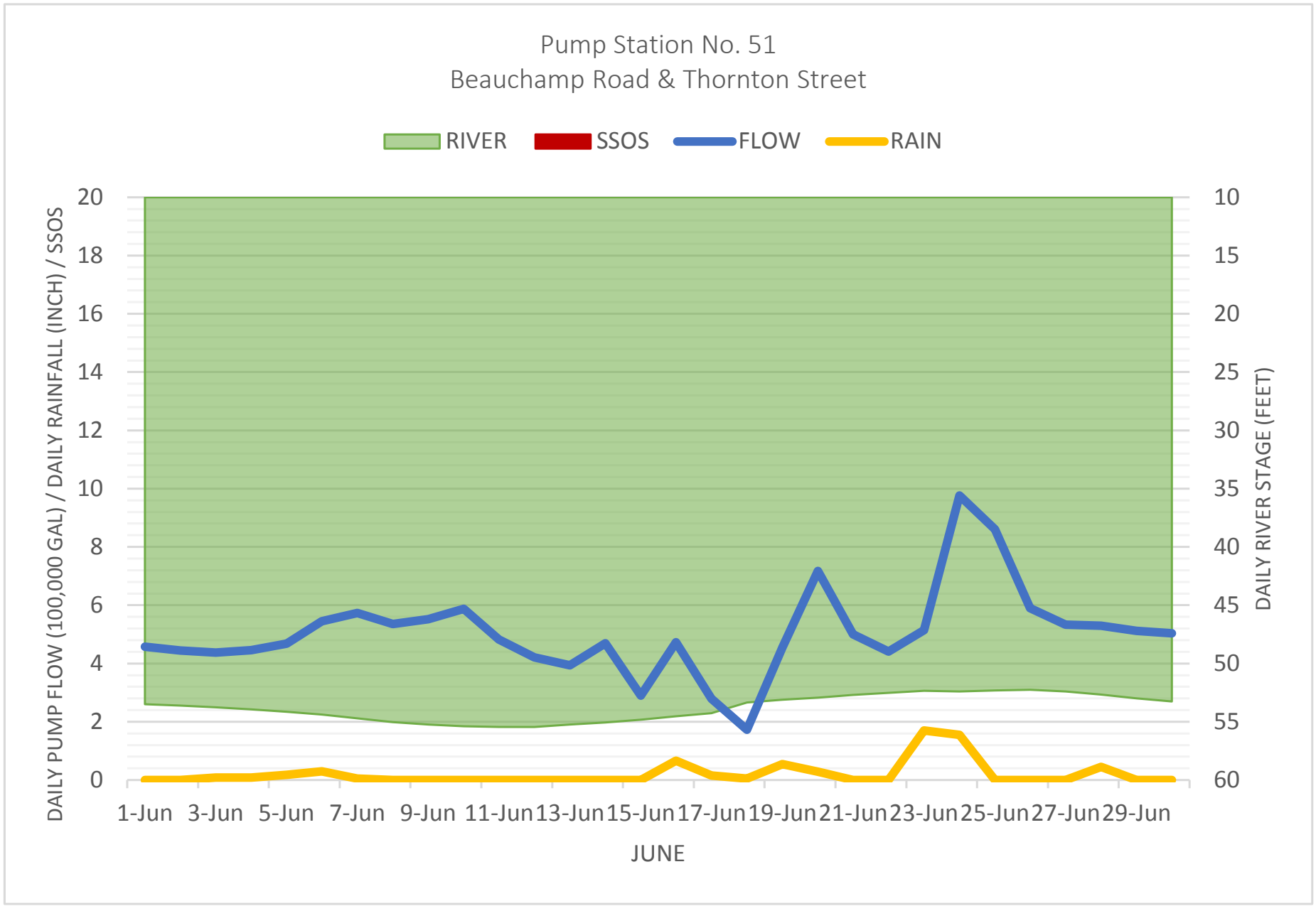
29-May
31-May
MAY


Pump Station No. 51
Beauchamp Road & Thornton Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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1-Jun
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23-Jun
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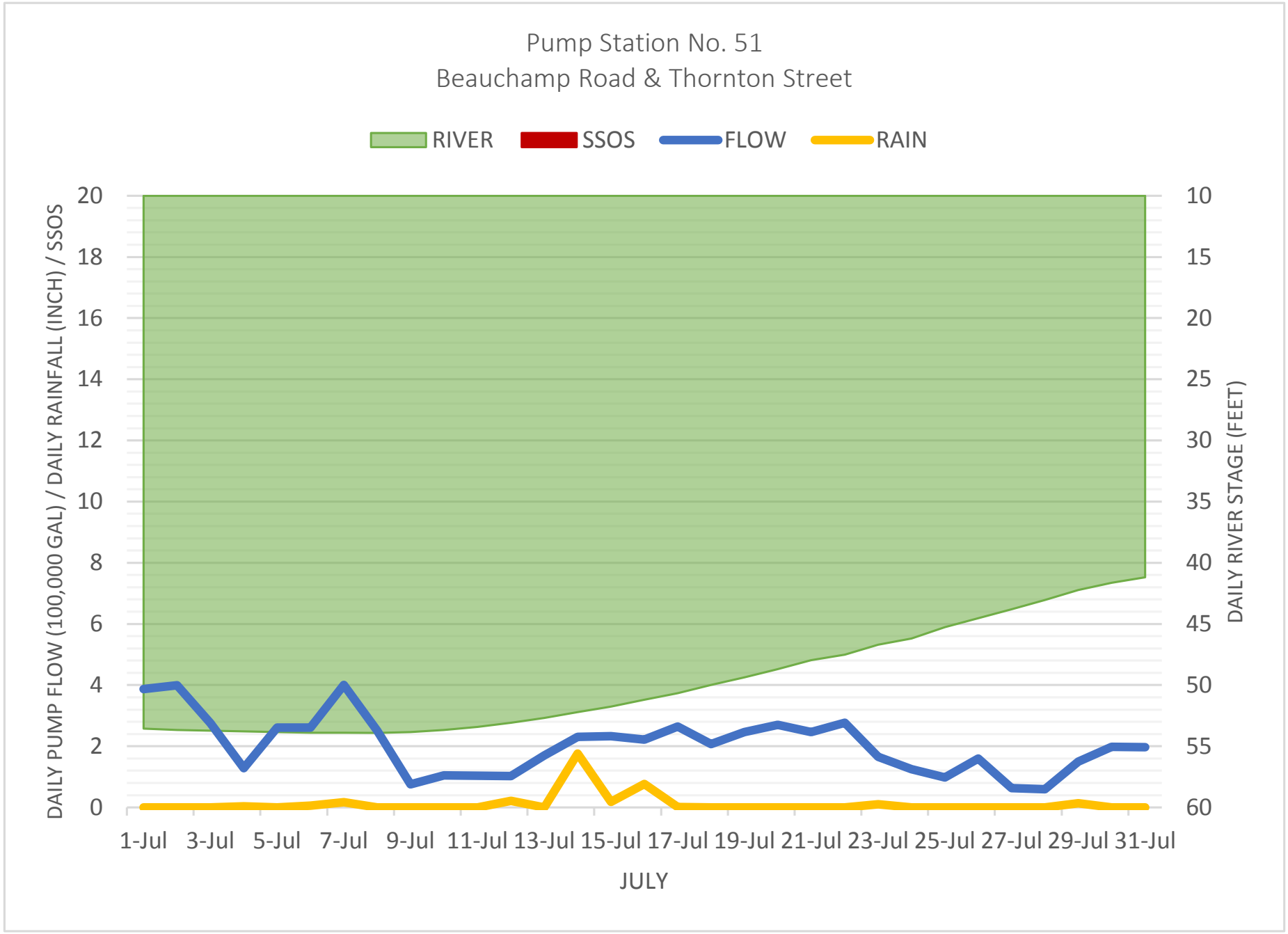
27-Jun
29-Jun
JUNE


Pump Station No. 51
Beauchamp Road & Thornton Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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1-Jul
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7-Jul
9-Jul
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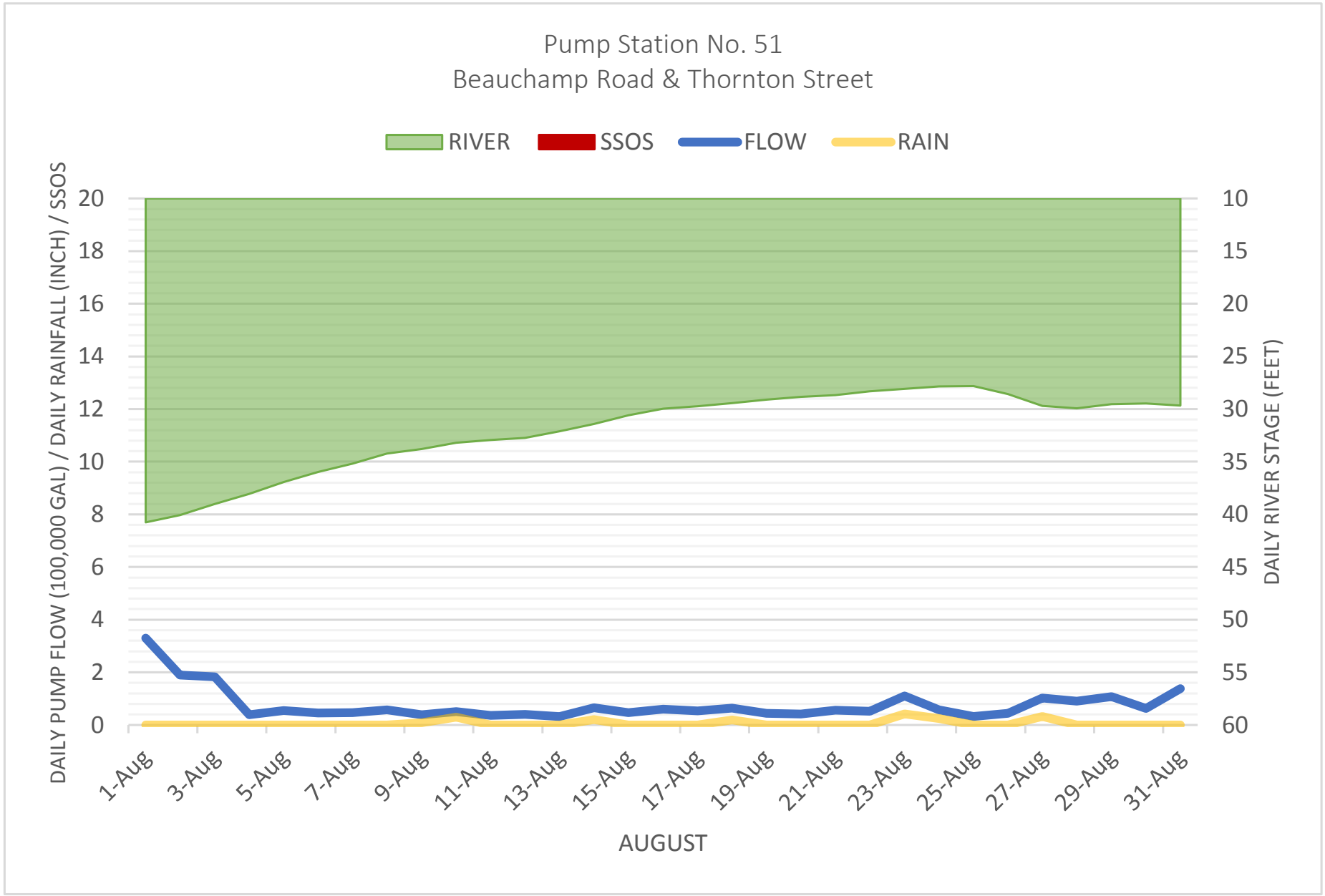
27-Jul
29-Jul
31-Jul
JULY


Pump Station No. 51
Beauchamp Road & Thornton Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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1-Aug
3-Aug
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7-Aug
9-Aug
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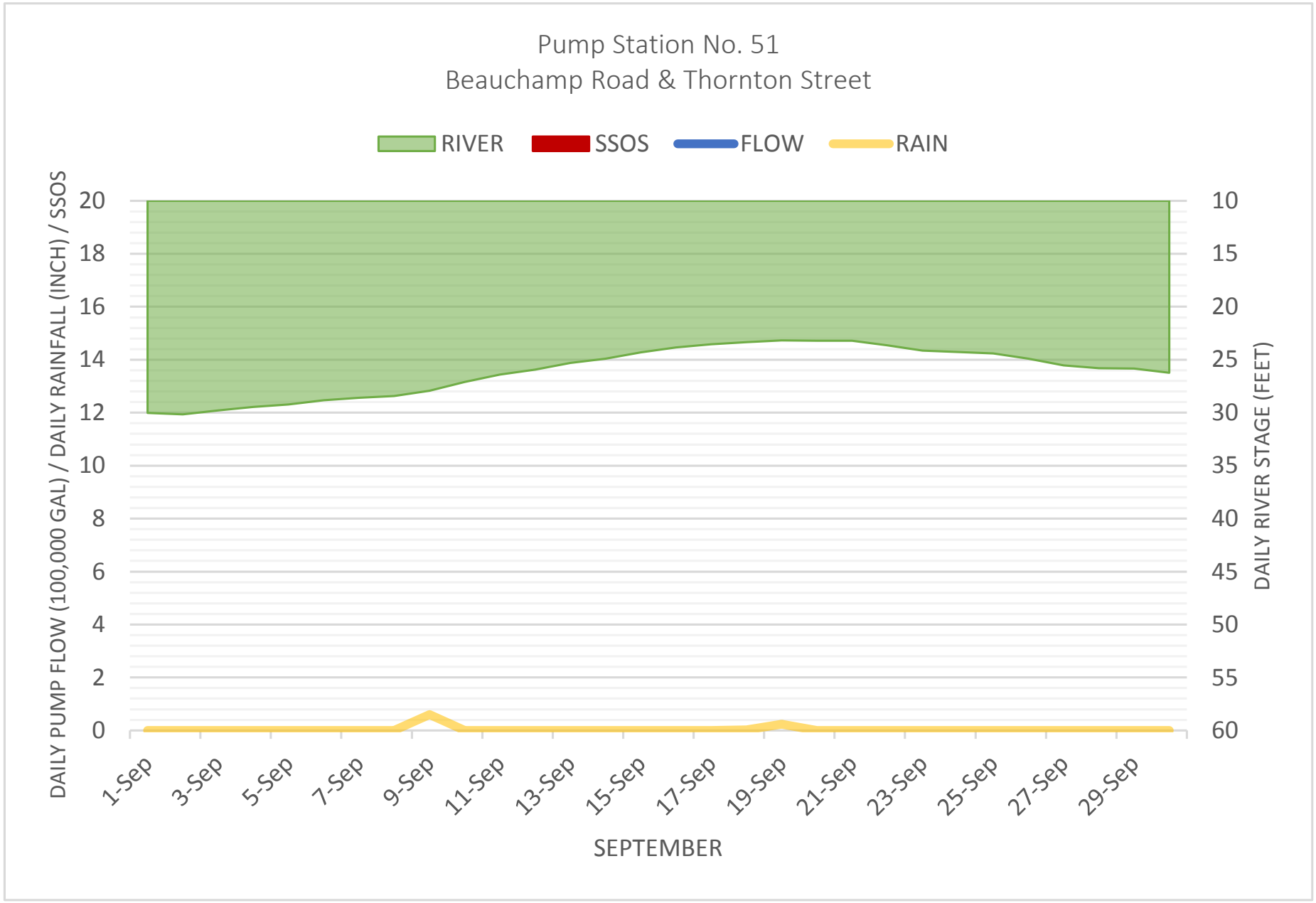
29-Aug
31-Aug
AUGUST


Pump Station No. 51
Beauchamp Road & Thornton Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
20
18
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1-Sep
3-Sep
5-Sep
7-Sep
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19-Sep
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23-Sep
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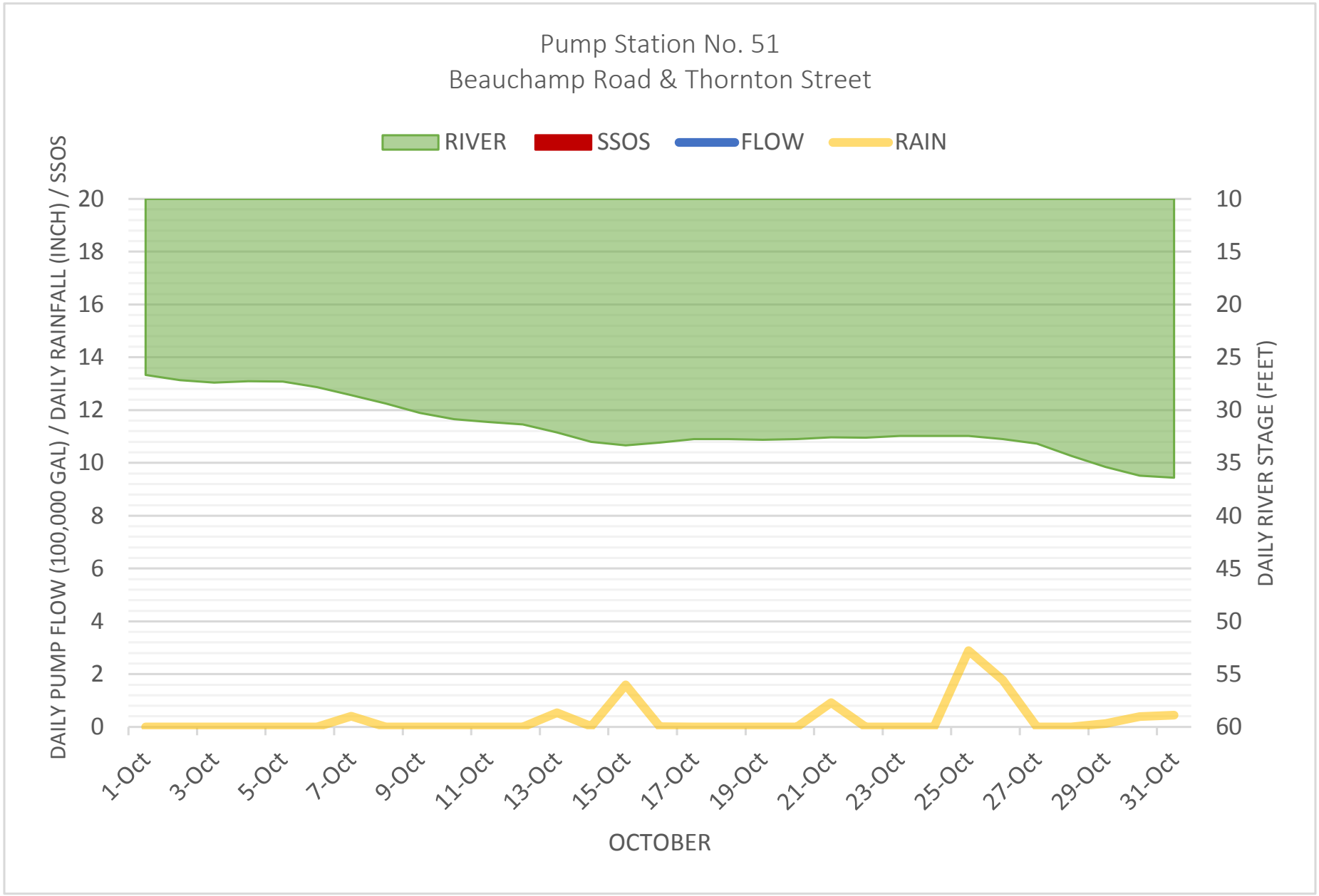
27-Sep
29-Sep
SEPTEMBER


Pump Station No. 51
Beauchamp Road & Thornton Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (100,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
20
18
16
14
12
10
8
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4
2
0
10
15
20
25
30
35
40
45
50
55
60
1-Oct
3-Oct
5-Oct
7-Oct
9-Oct
11-Oct
13-Oct
15-Oct
17-Oct
19-Oct
21-Oct
23-Oct
25-Oct
27-Oct
29-Oct
31-Oct
OCTOBER

APPENDIX 59

MS33/PS91-E I/I WORKSHEET

MS33/PS91-E
INFLOW & INFILTRATION WORKSHEET

Infiltration

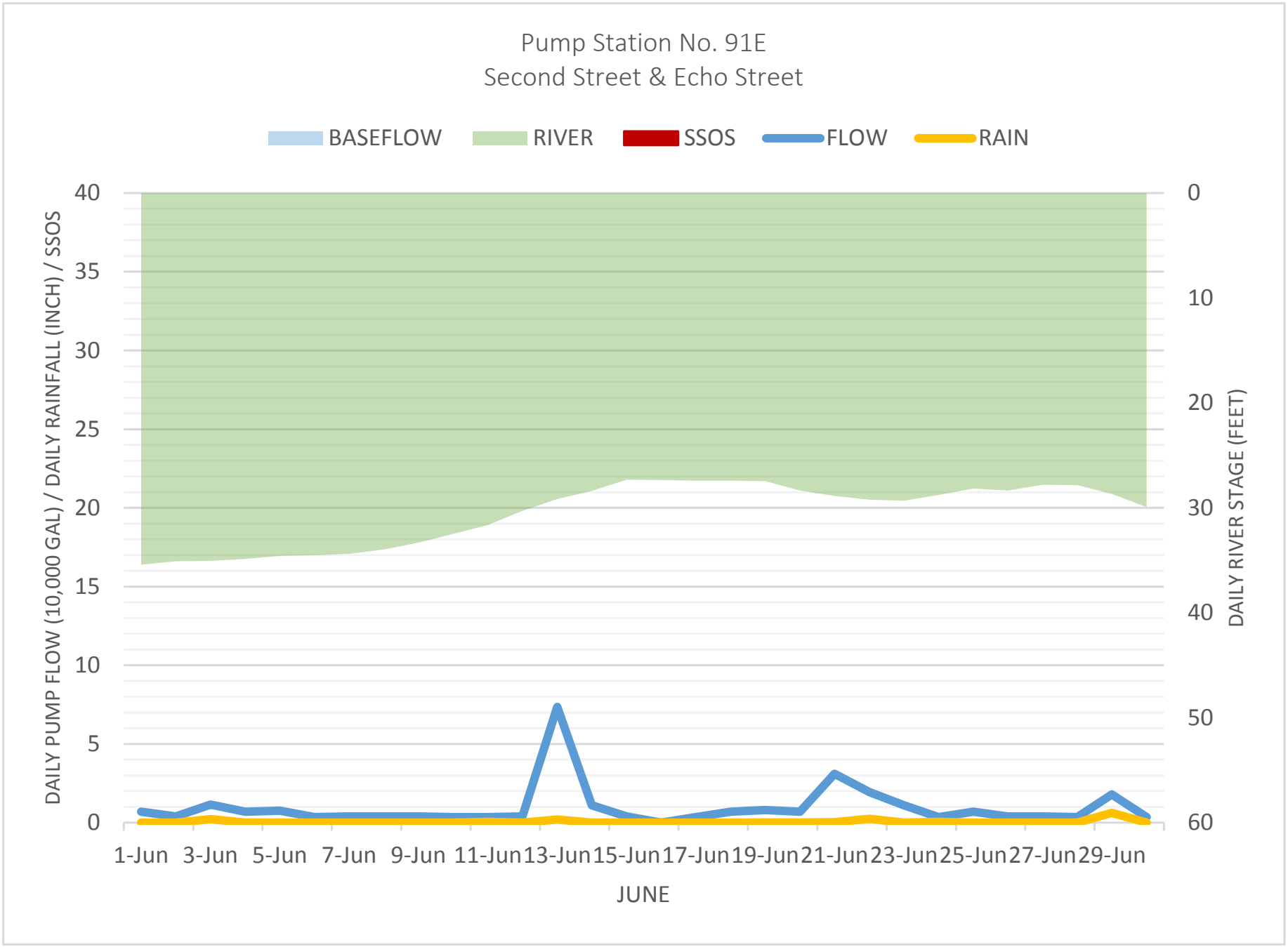
	feet	miles	diameter	inch-miles	
10" Gravity	0	0.00	10.00	0	
8" Gravity	7597	1.44	8.00	11.51061	
6" Gravity	1439	0.27	6	1.635227	
laterals	0	0.00	4	0	
				13.14583	**total inch-miles in system**
		maximum average infiltration	inch-miles		
		1,642.86	13.15	**124.9717**	**total gpd/idm**

Inflow

	feet	miles	diameter	inch-miles	
10" Gravity	0	0.00	10.00	0	
8" Gravity	7597	1.44	8.00	11.51061	
6" Gravity	1439	0.27	6.00	1.635227	
laterals	0	0.00	4.00	0	
TOTAL PIPE	9036				
				13.14583	**total inch-miles in system**
		maximum average inflow	inch-miles		
		101,714.29	13.15	**7737.378**	**total gpd/idm**

APPENDIX 60

MS33/PS91-E GRAPHS


Pump Station No. 91E
Second Street & Echo Street
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
0
10
20
30
40
50
60
1-Jun
3-Jun
5-Jun
7-Jun
9-Jun
11-Jun
13-Jun
15-Jun
17-Jun
19-Jun
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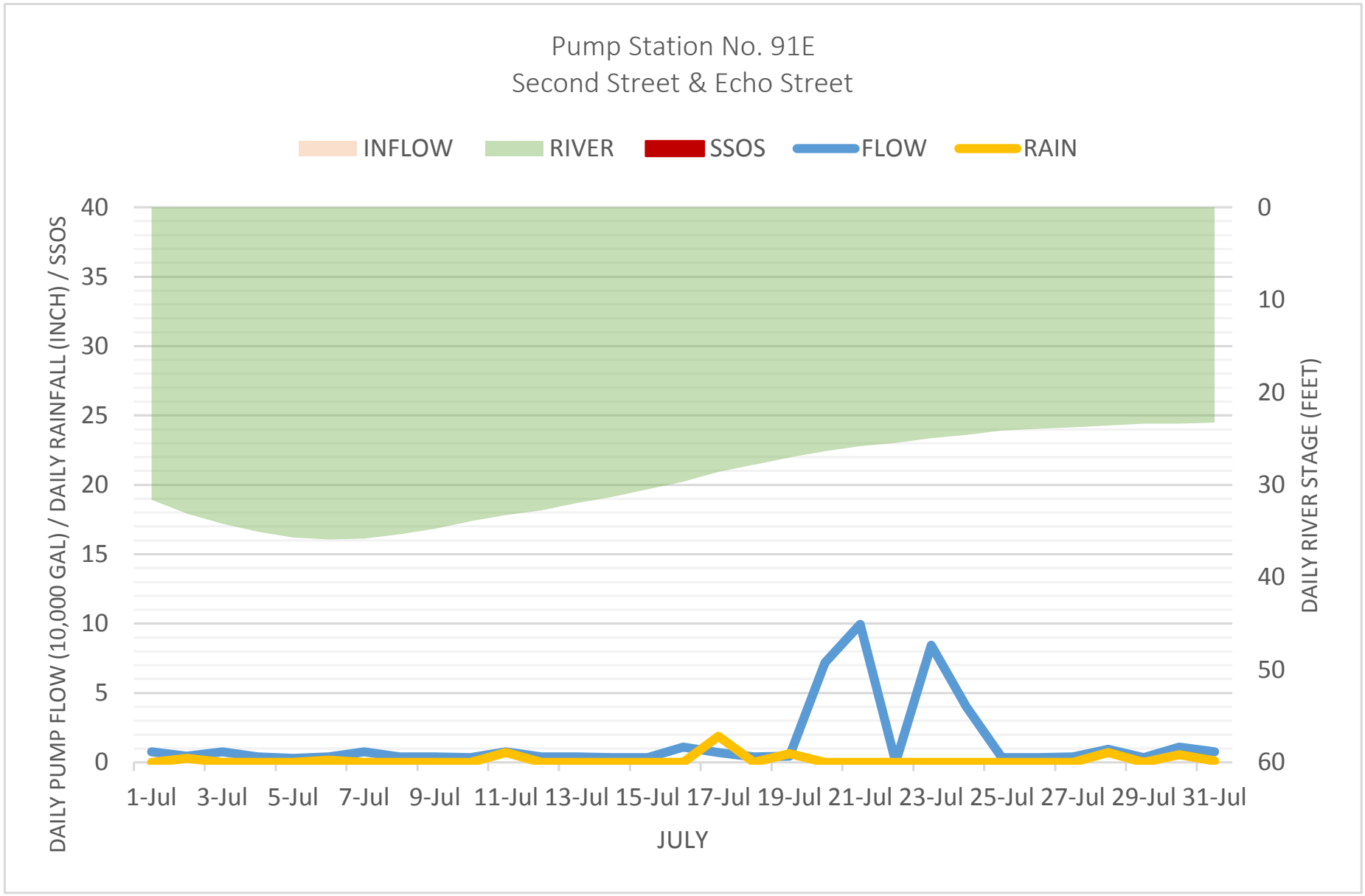
27-Jun
29-Jun
JUNE


Pump Station No. 91E
Second Street & Echo Street
INFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
0
10
20
30
40
50
60
1-Jul
3-Jul
5-Jul
7-Jul
9-Jul
11-Jul
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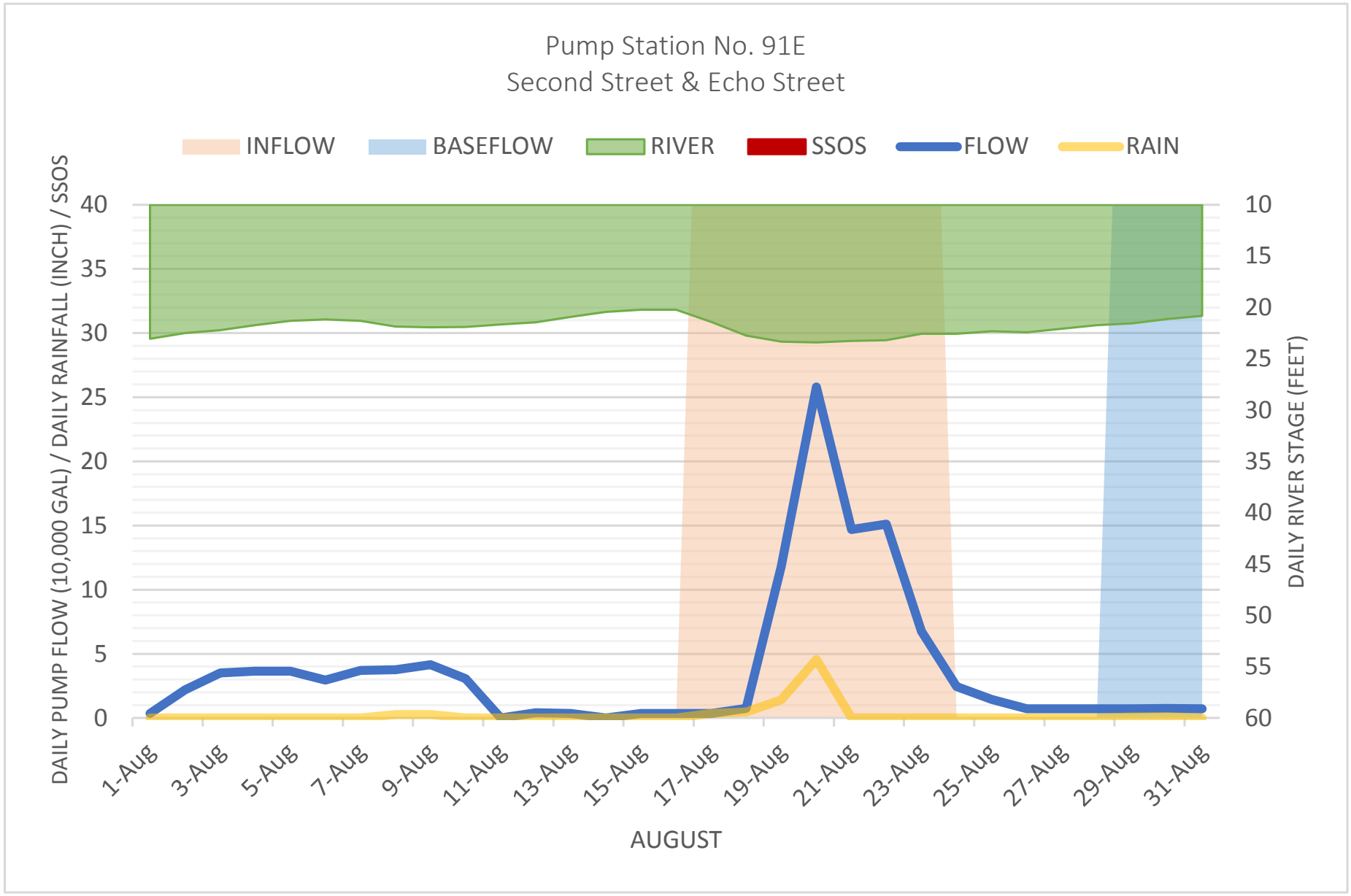
17-Jul
19-Jul
21-Jul
23-Jul
25-Jul
27-Jul
29-Jul
31-Jul
JULY


Pump Station No. 91E
Second Street & Echo Street
INFLOW
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
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0
10
15
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35
40
45
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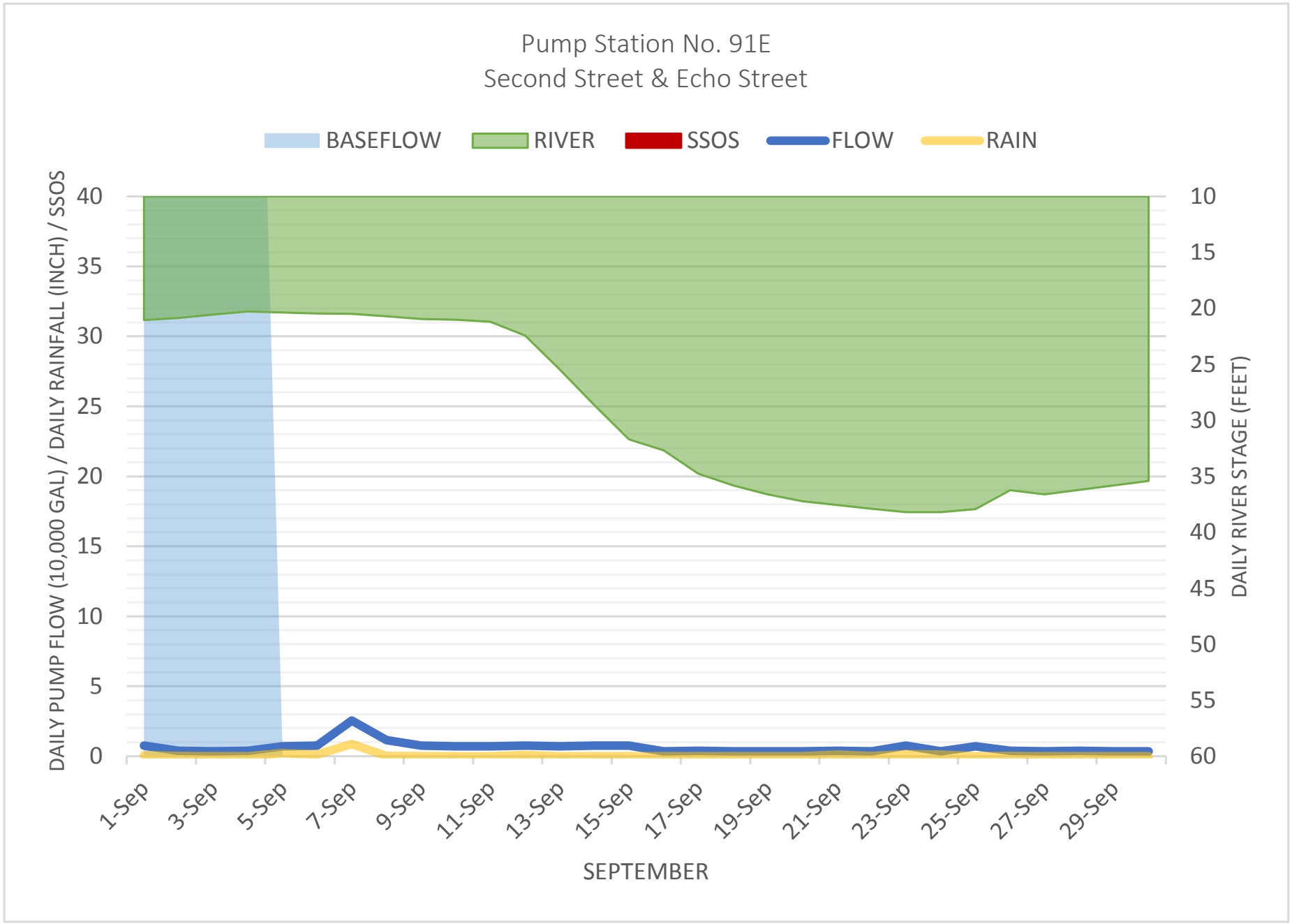
55
60
1-Aug
3-Aug
5-Aug
7-Aug
9-Aug
11-Aug
13-Aug
15-Aug
17-Aug
19-Aug
21-Aug
23-Aug
25-Aug
27-Aug
29-Aug
31-Aug
AUGUST


Pump Station No. 91E
Second Street & Echo Street
BASEFLOW
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
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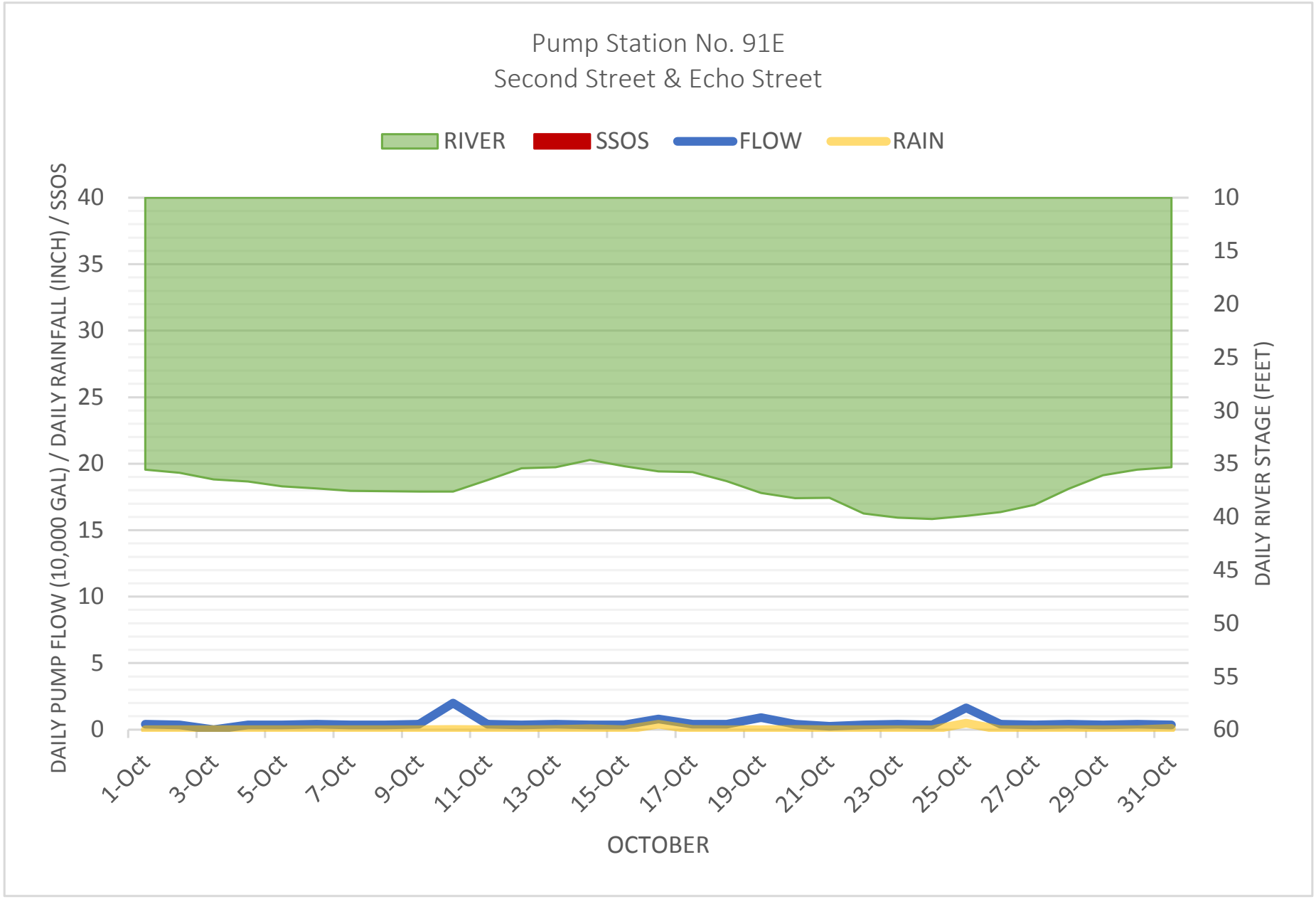
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Second Street & Echo Street
RIVER
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FLOW
RAIN
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DAILY RIVER STAGE (FEET)
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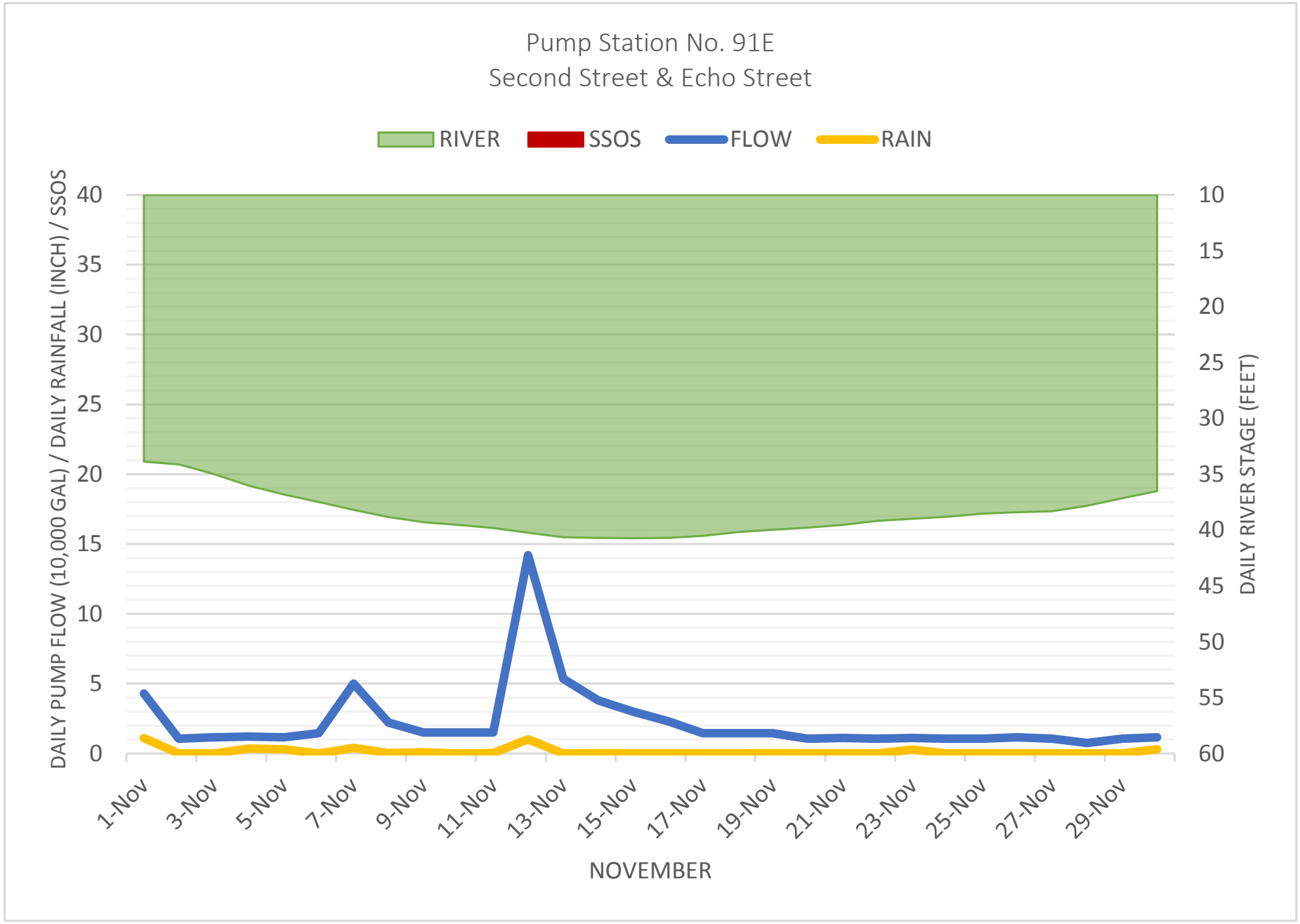
OCTOBER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RAIN
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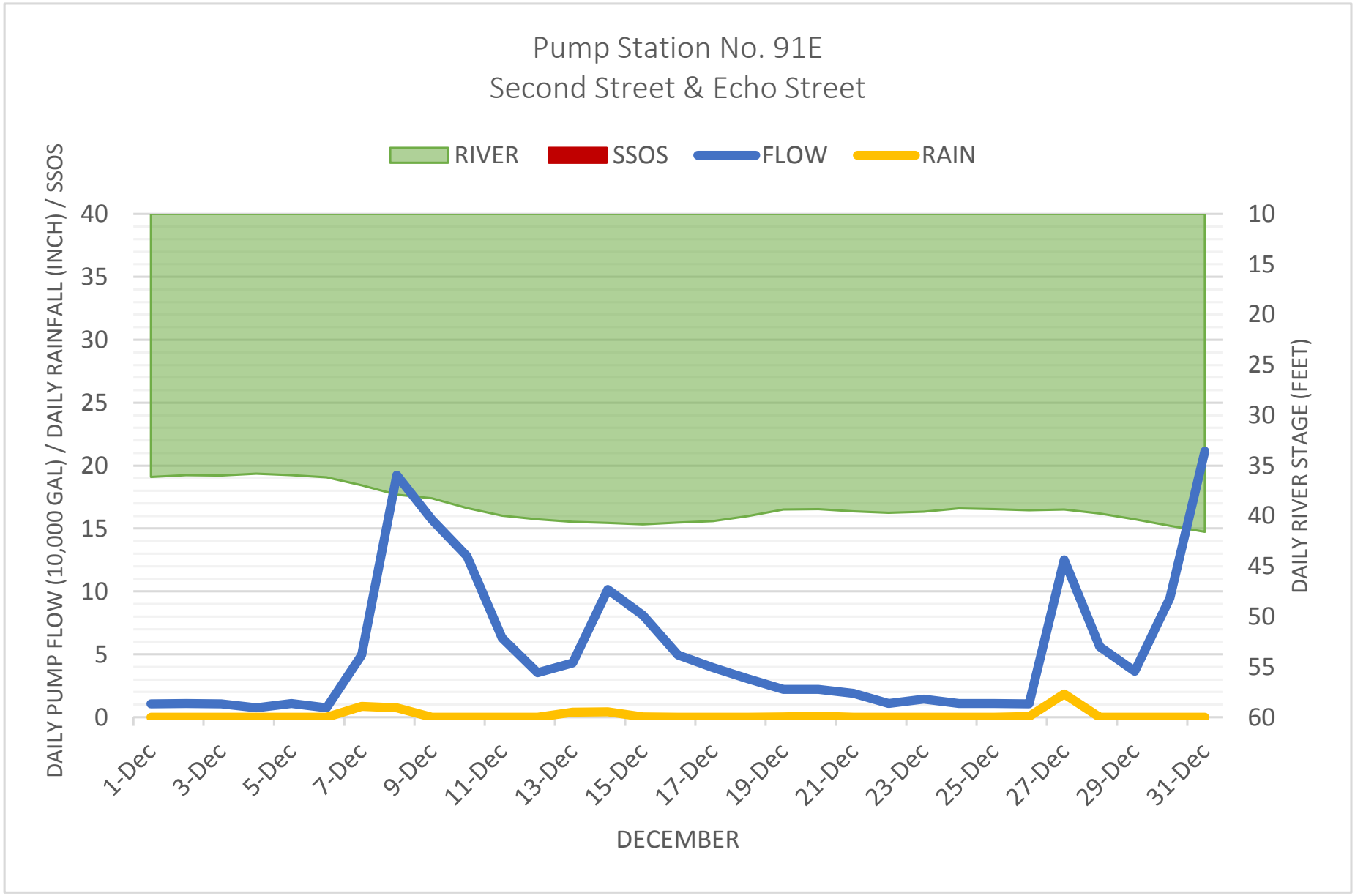
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Second Street & Echo Street
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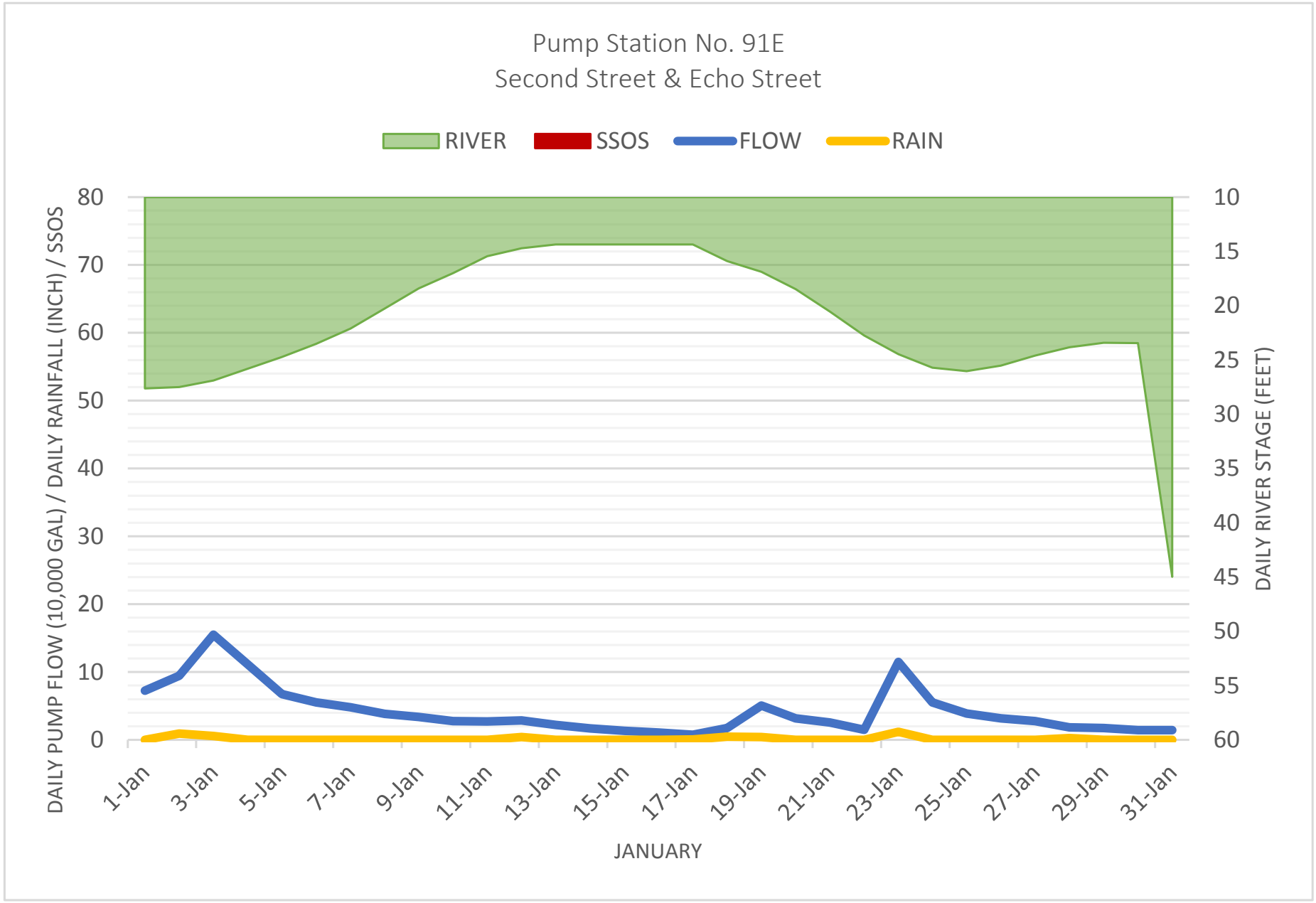
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Second Street & Echo Street
RIVER
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FLOW
RAIN
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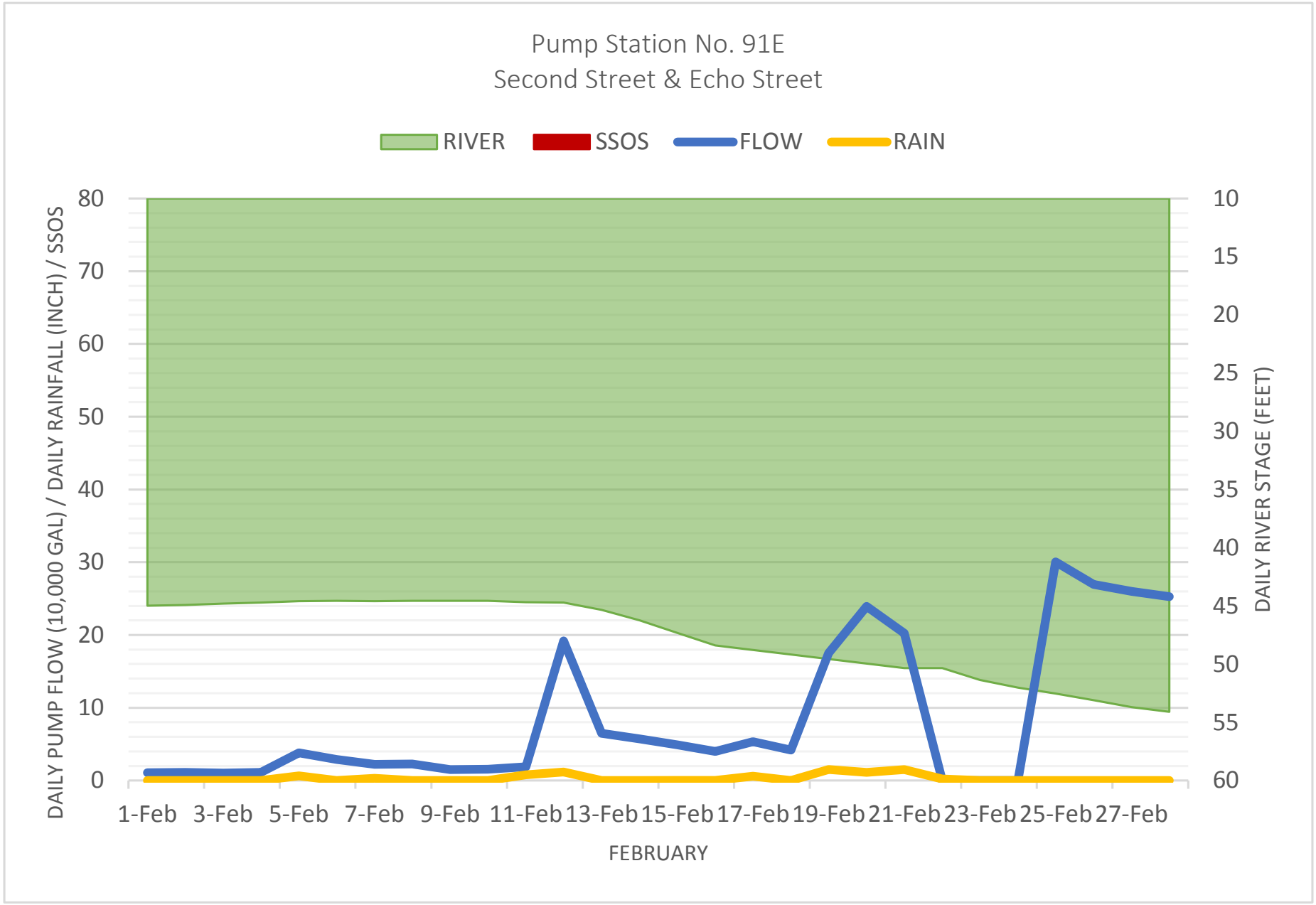
JANUARY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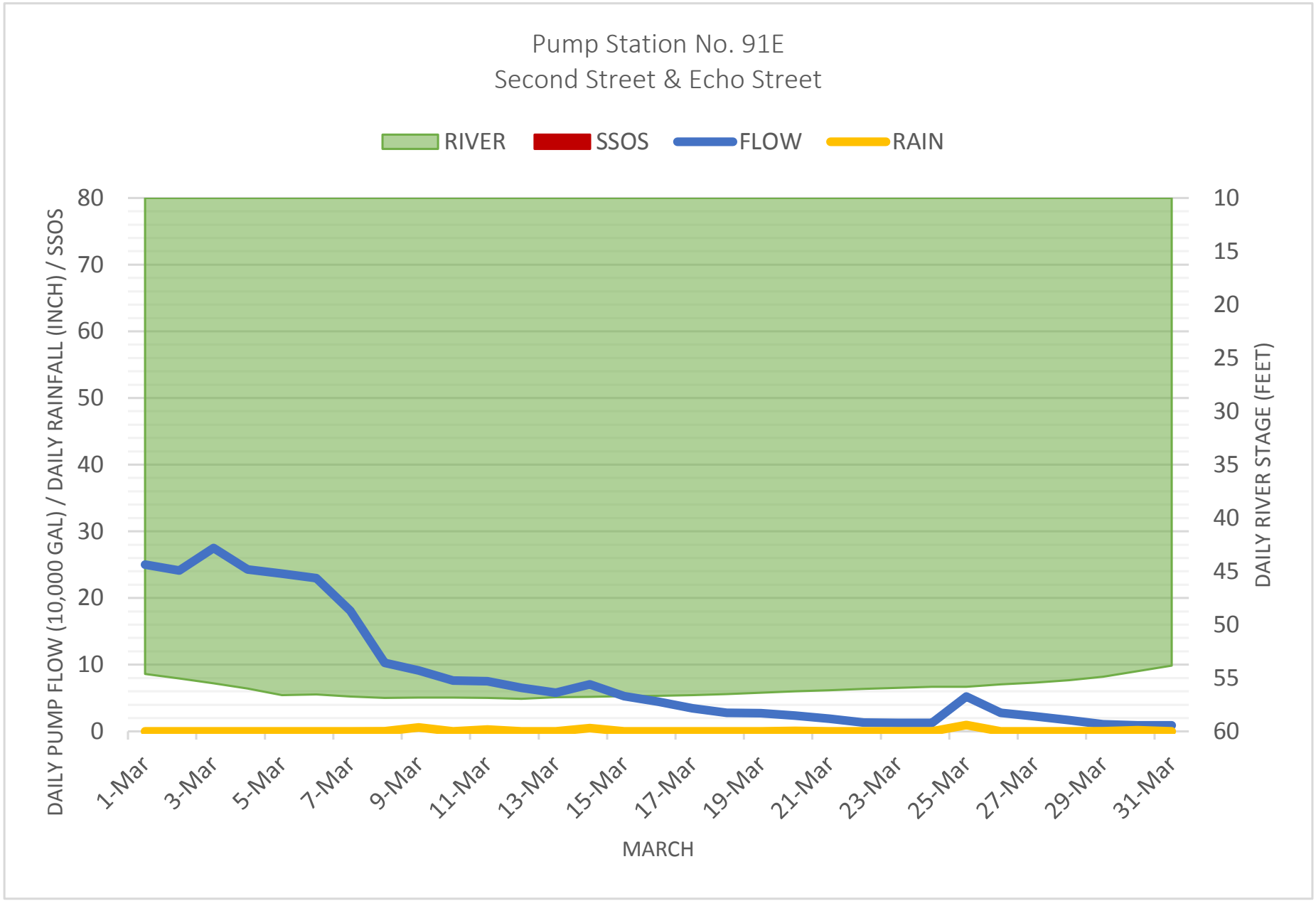
FEBRUARY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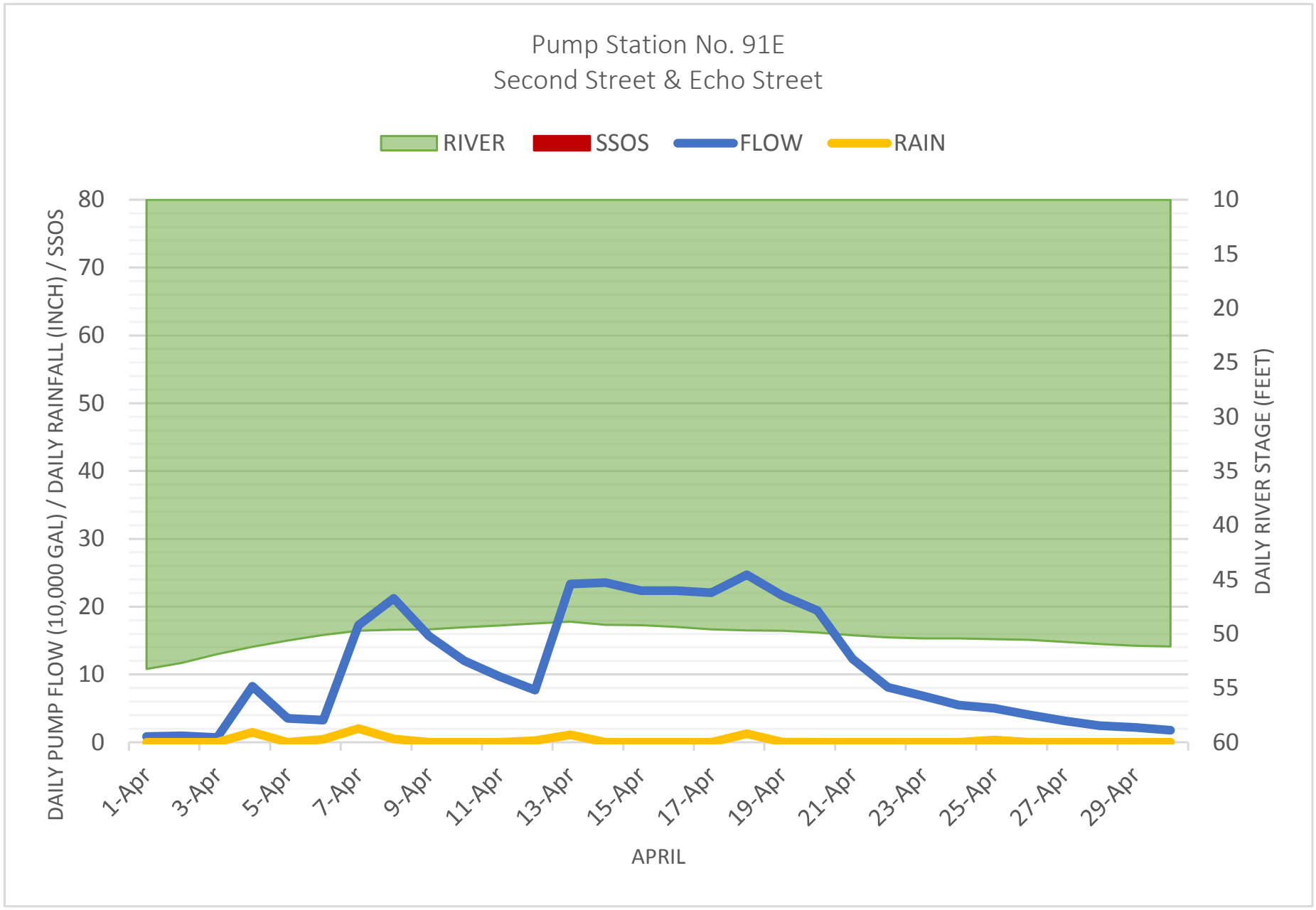
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FLOW
RAIN
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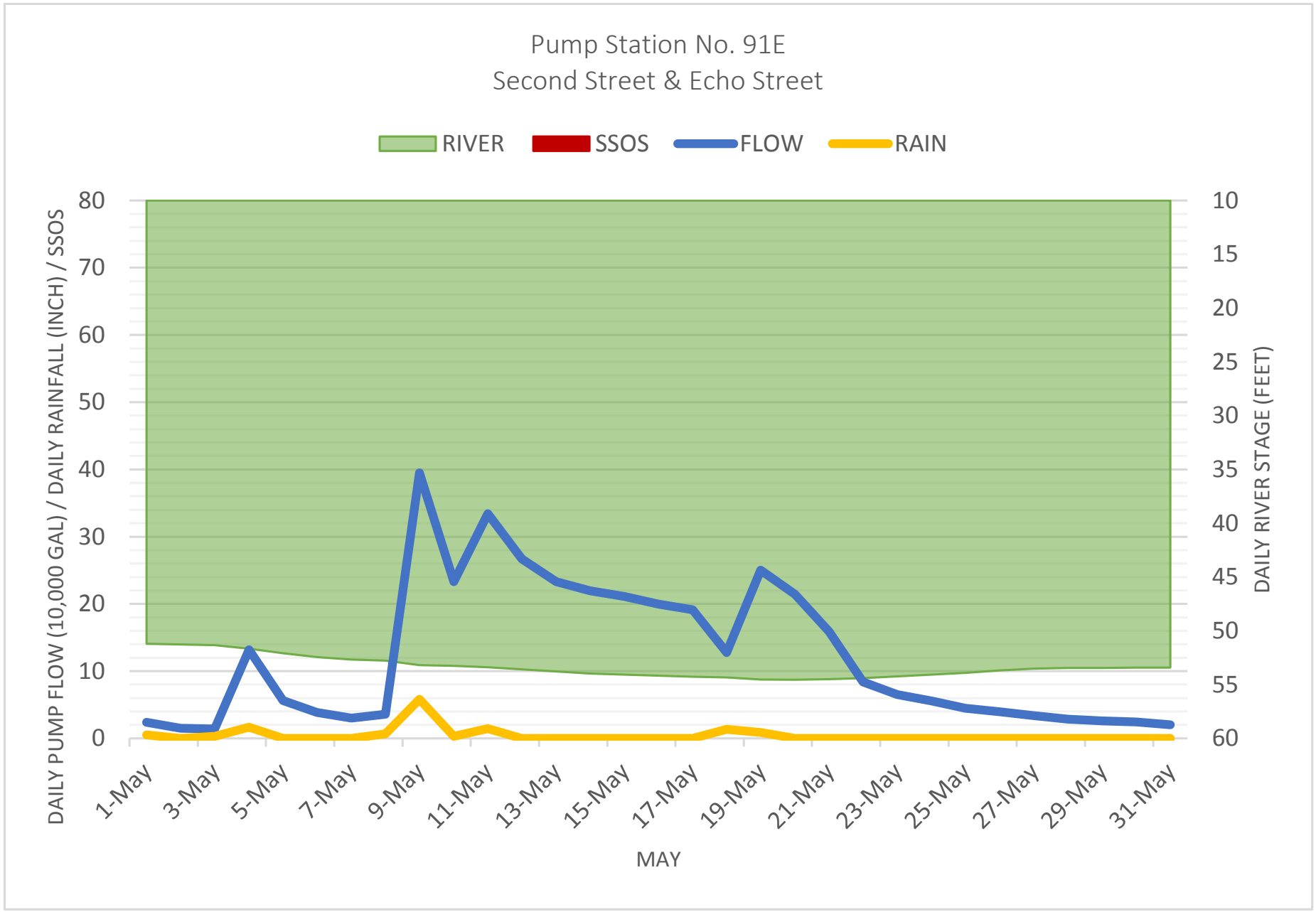
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DAILY RIVER STAGE (FEET)
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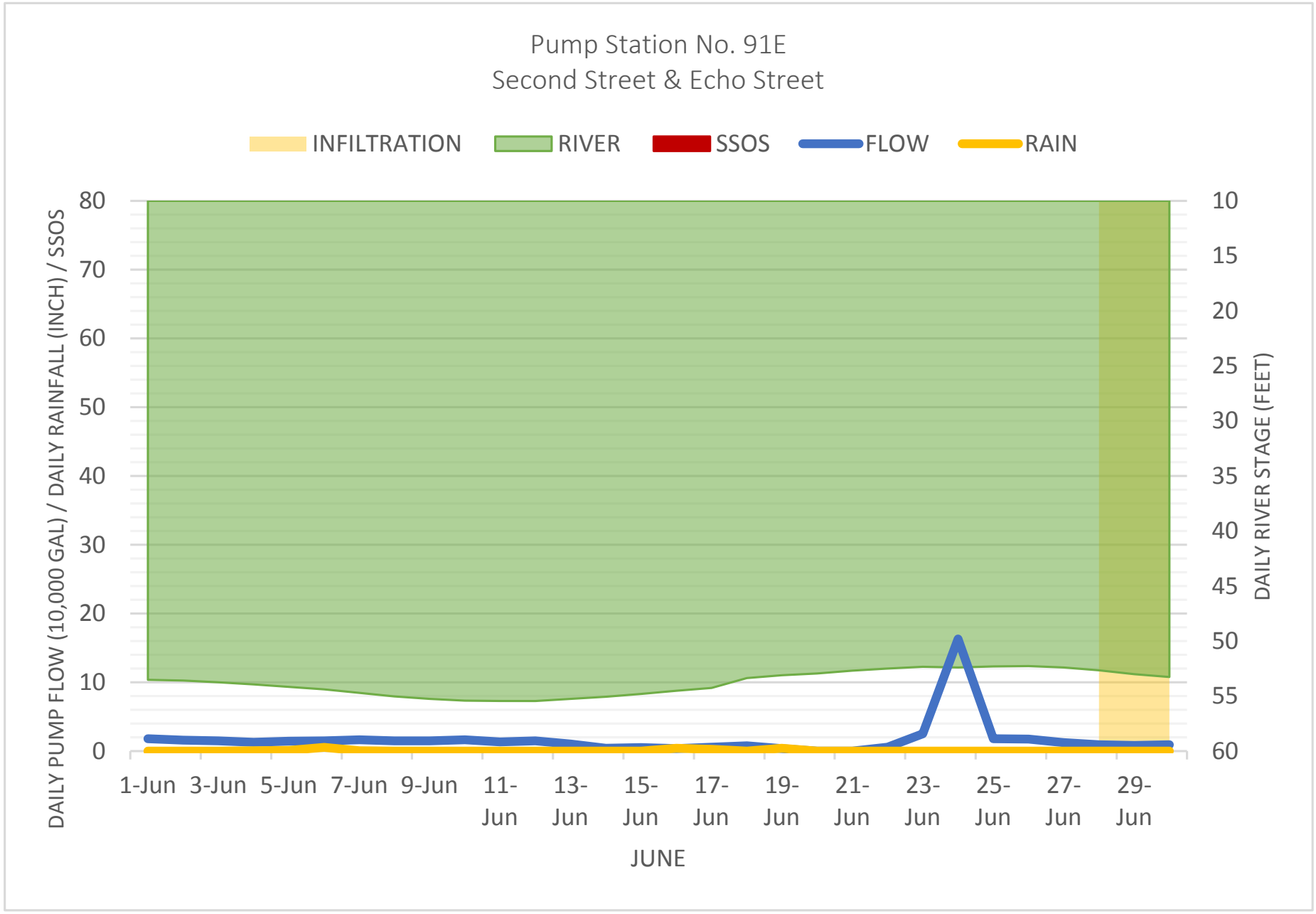
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Second Street & Echo Street
INFILTRATION
RIVER
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RAIN
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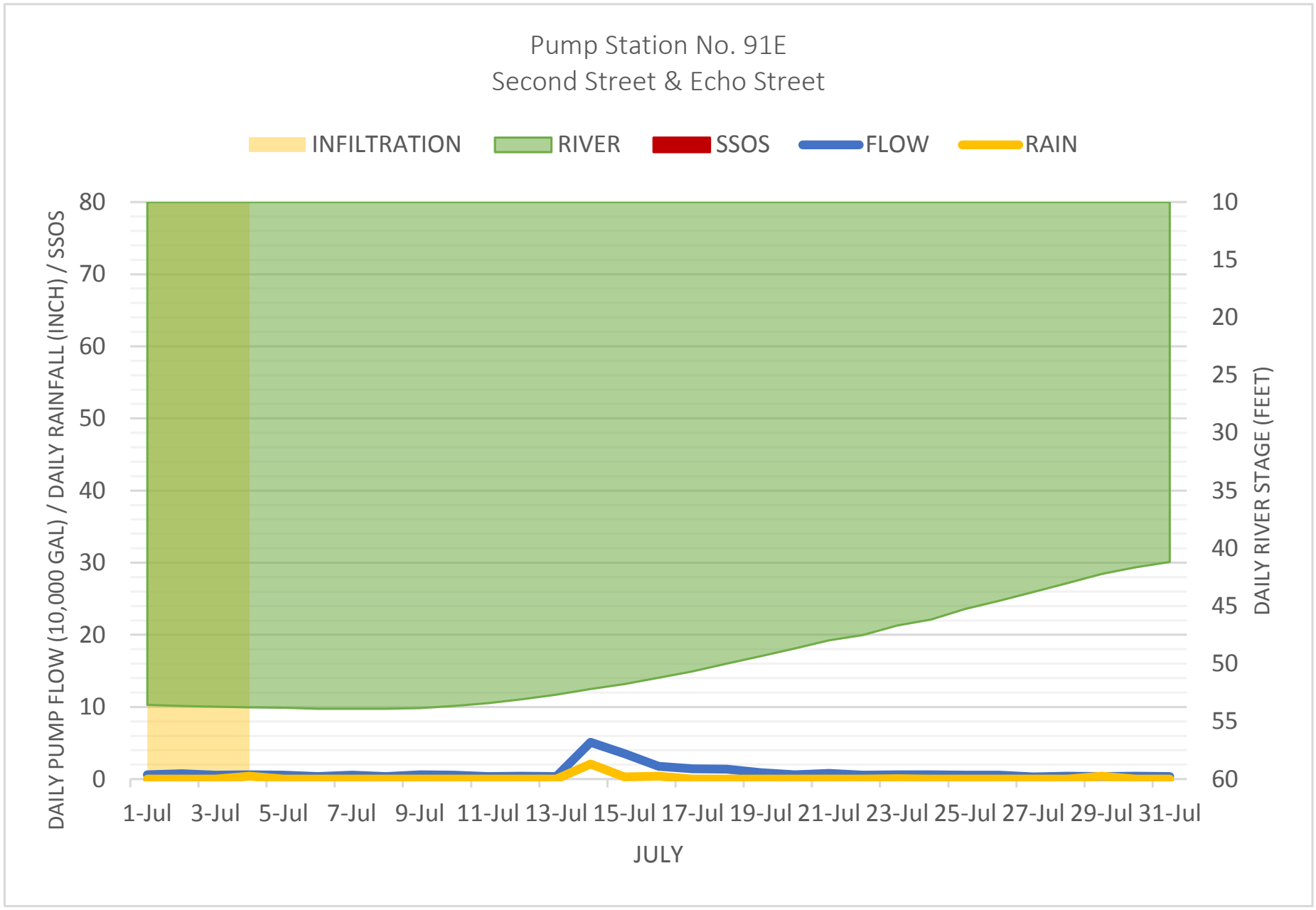
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INFILTRATION
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DAILY RIVER STAGE (FEET)
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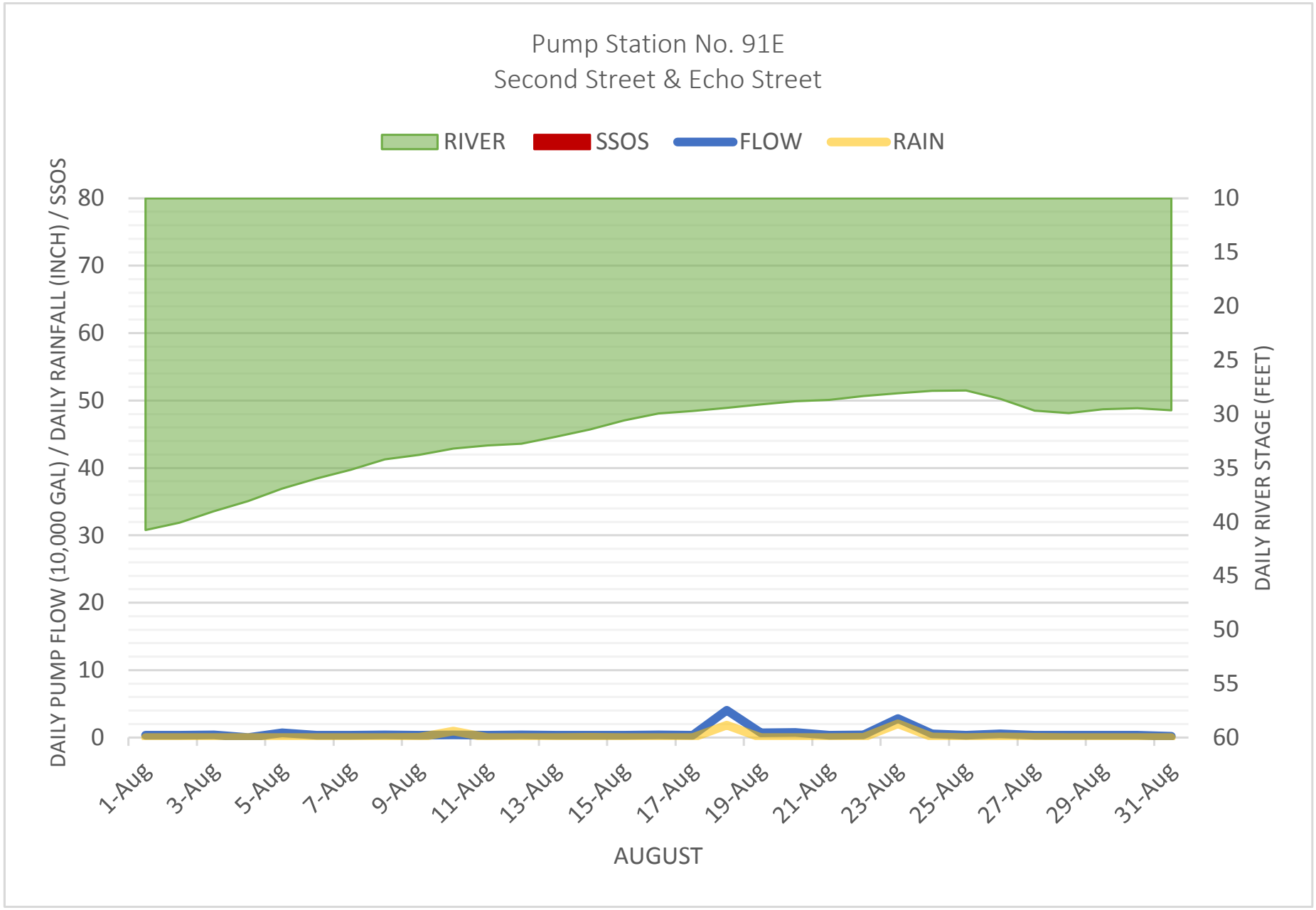
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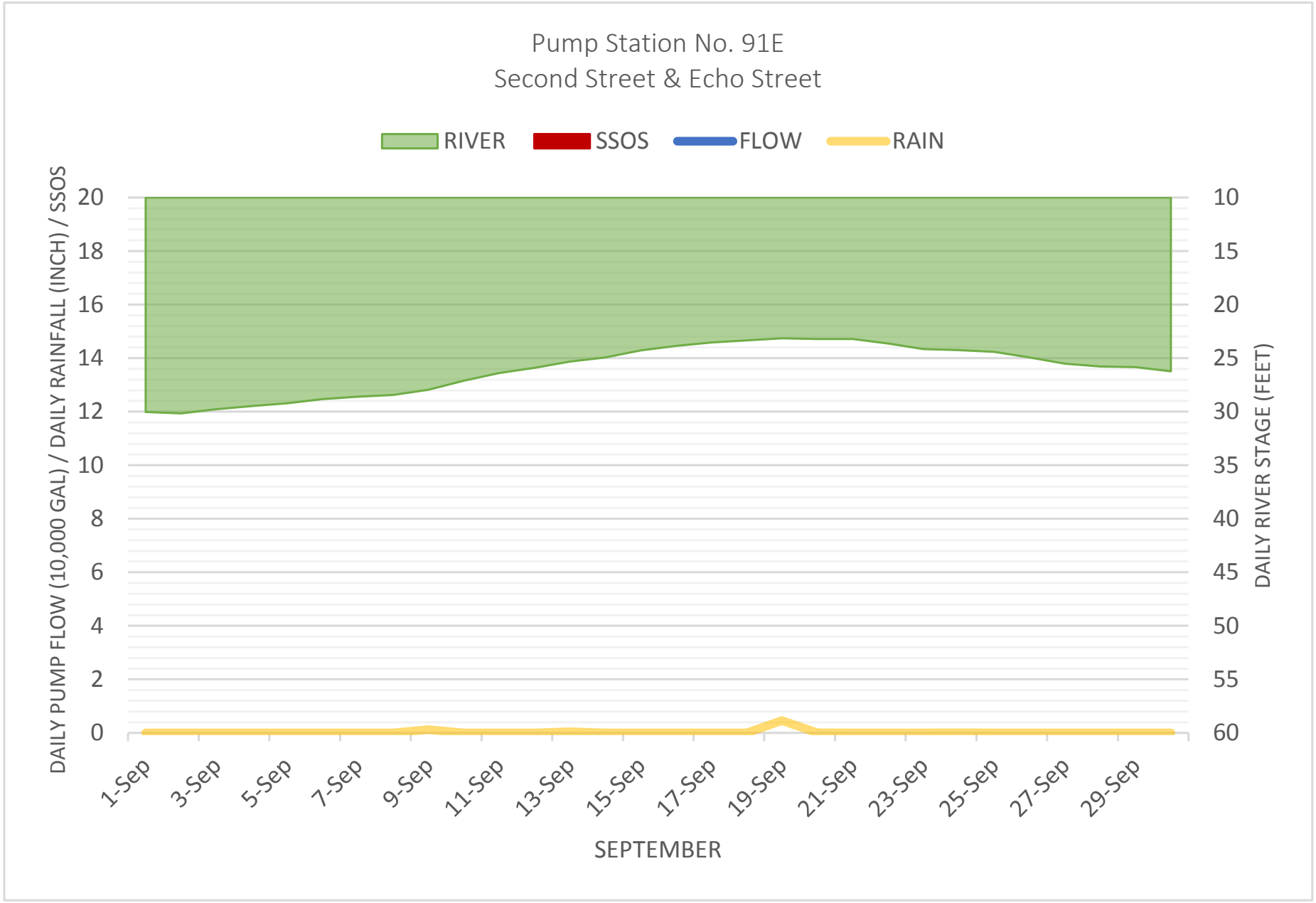
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RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
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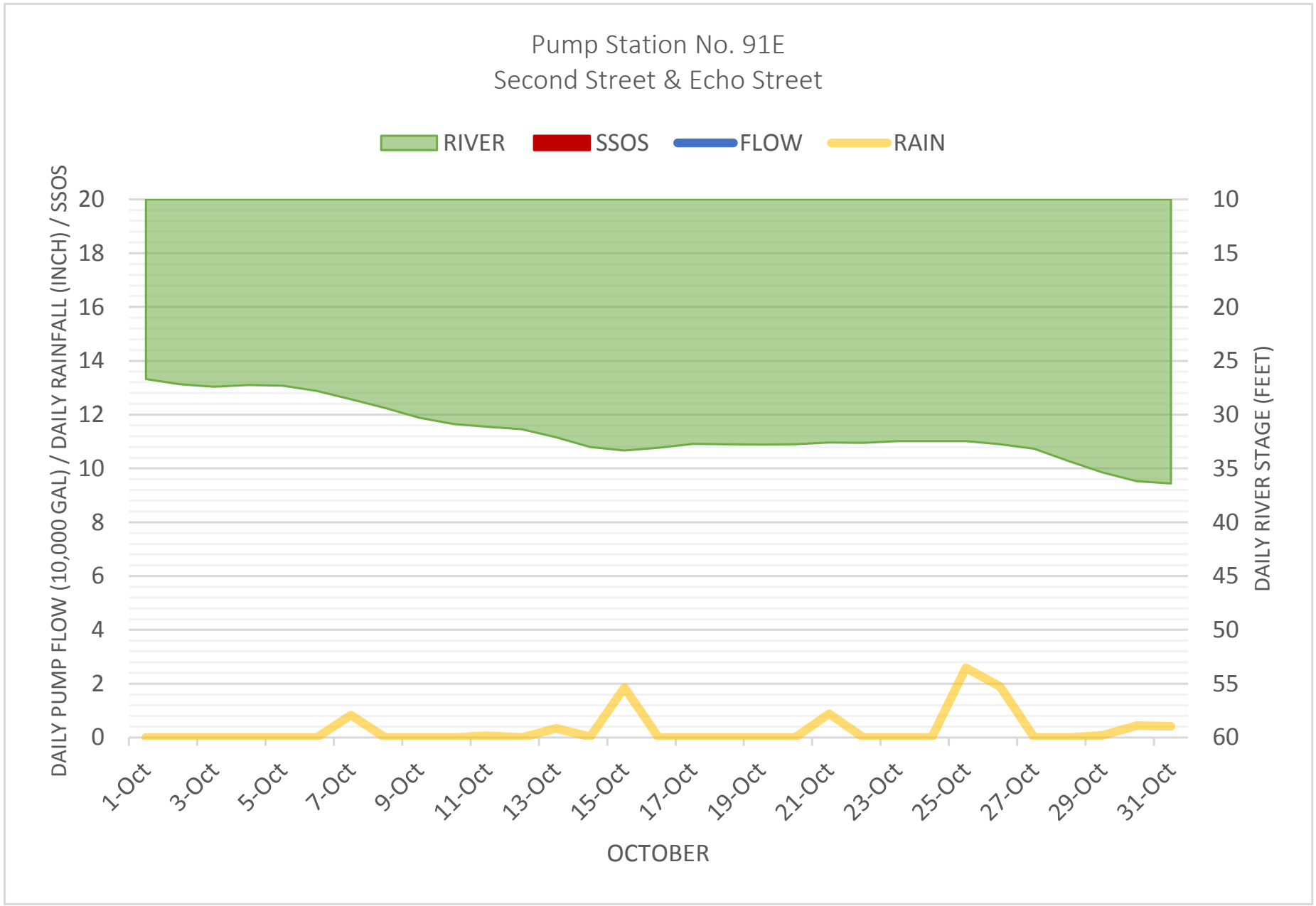
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RAIN
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DAILY RIVER STAGE (FEET)
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31-Oct
OCTOBER

APPENDIX 61

MS33/PS91-F I/I WORKSHEET

MS33/PS91-F
INFLOW & INFILTRATION WORKSHEET

Infiltration

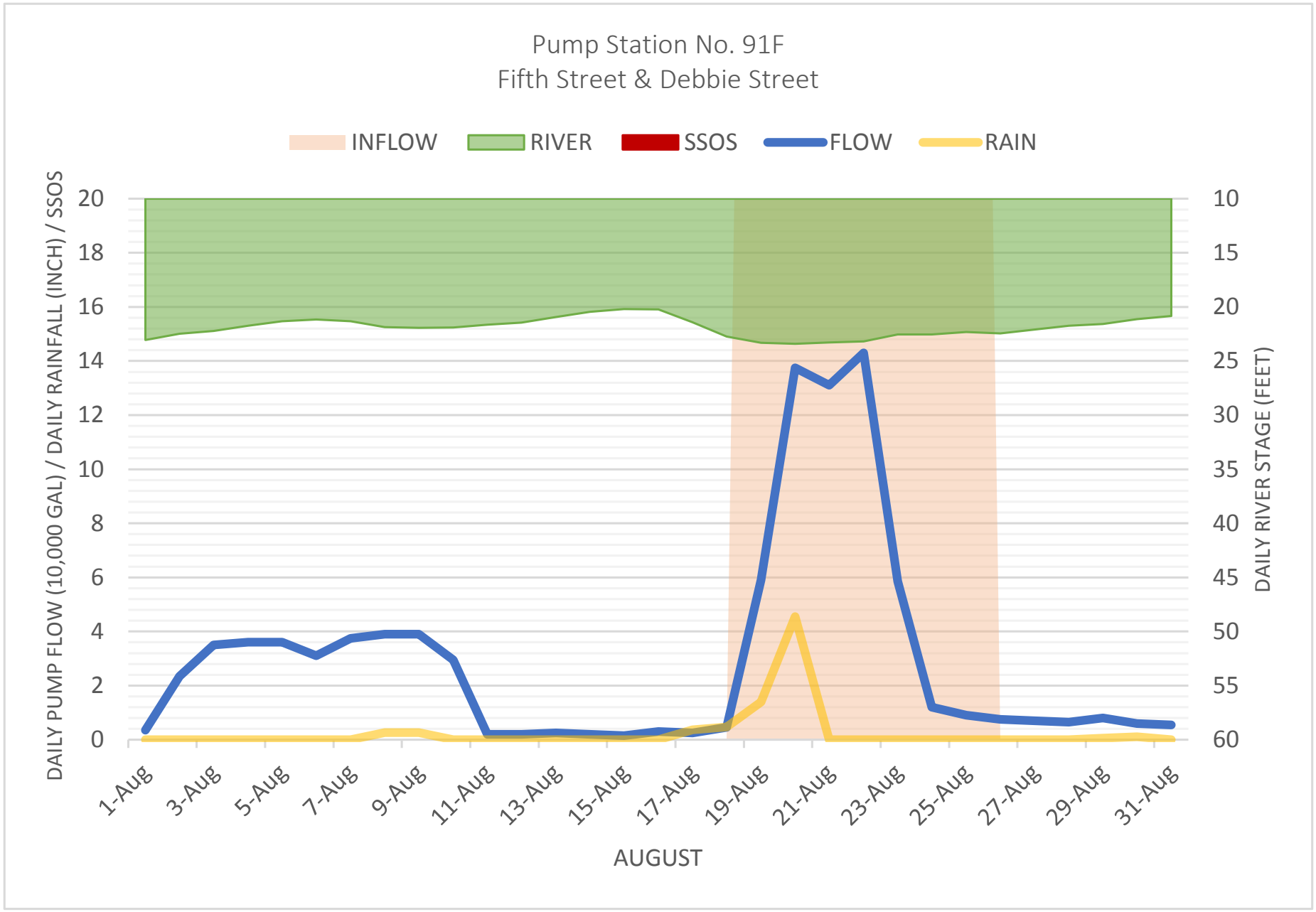
	feet	miles	diameter	inch-miles	
15" Gravity	0	0.00	15.00	0	
10" Gravity	0	0.00	10.00	0	
8" Gravity	2632	0.50	8	3.987879	
laterals	766	0.15	6	0.870455	
				4.858333	**total inch-miles in system**
		maximum average infiltration	inch-miles		
		11,500.0000	4.86	**2367.067**	**total gpd/idm**

Inflow

	feet	miles	diameter	inch-miles	
15" Gravity	0	0.00	15.00	0	
10" Gravity	0	0.00	10.00	0	
8" Gravity	2632	0.50	8.00	3.987879	
laterals	766	0.15	6.00	0.870455	
TOTAL PIPE	3398				
				4.858333	**total inch-miles in system**
		maximum average inflow	inch-miles		
		75,642.8571	4.86	**15569.71**	**total gpd/idm**

APPENDIX 62

MS33/PS91-F GRAPHS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Fifth Street & Debbie Street
INFLOW
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RAIN
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DAILY RIVER STAGE (FEET)
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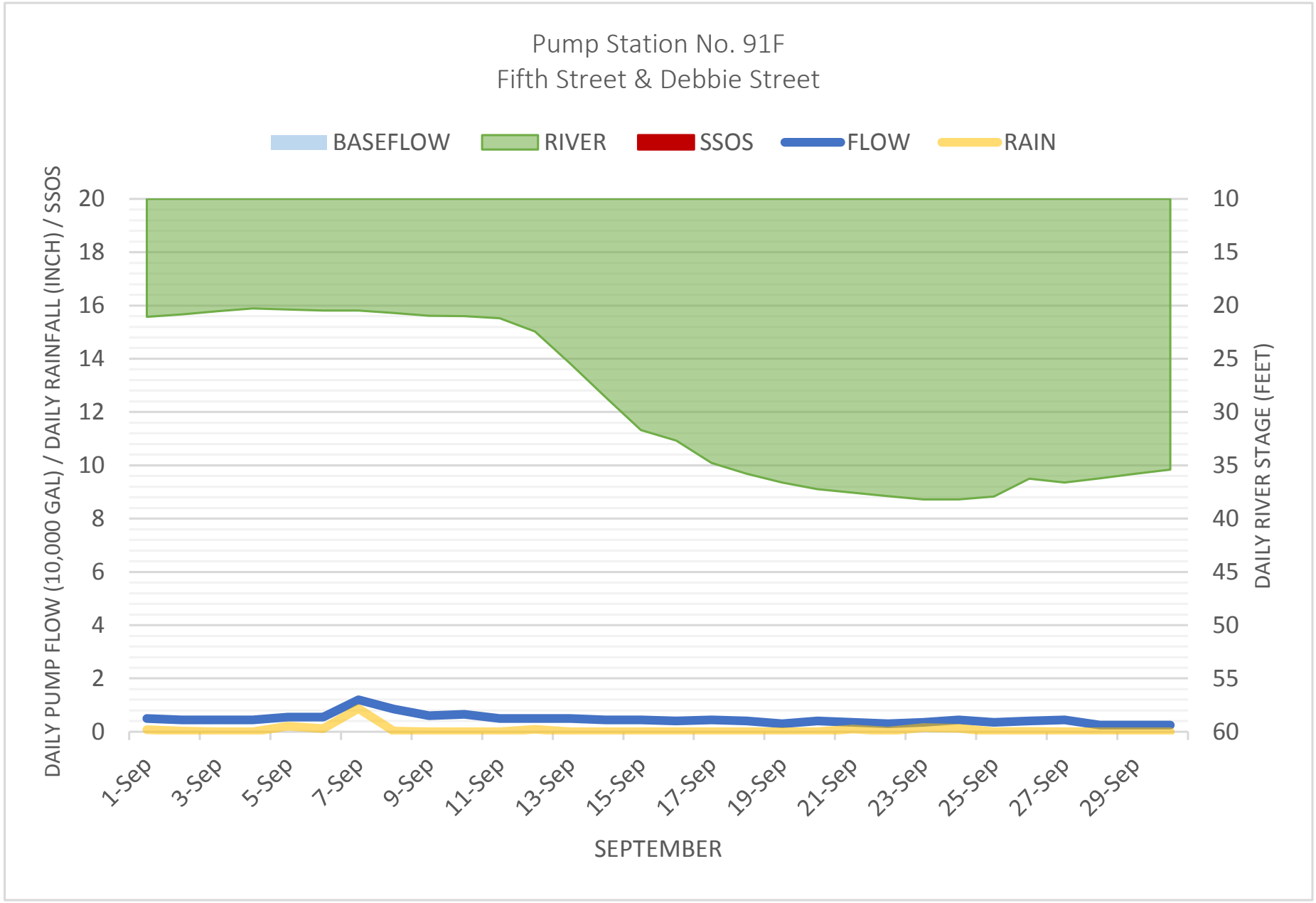
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BASEFLOW
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DAILY RIVER STAGE (FEET)
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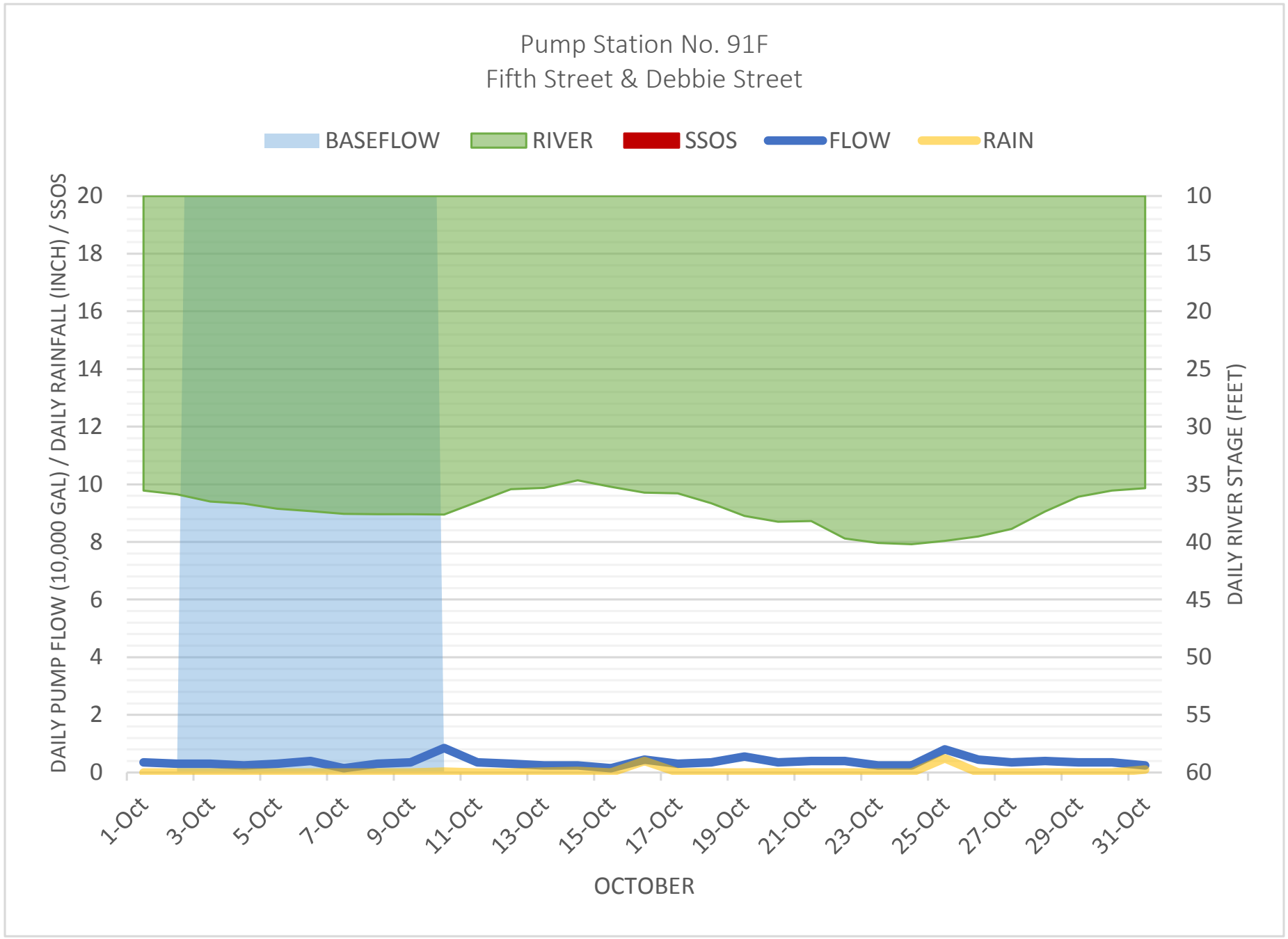
SEPTEMBER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BASEFLOW
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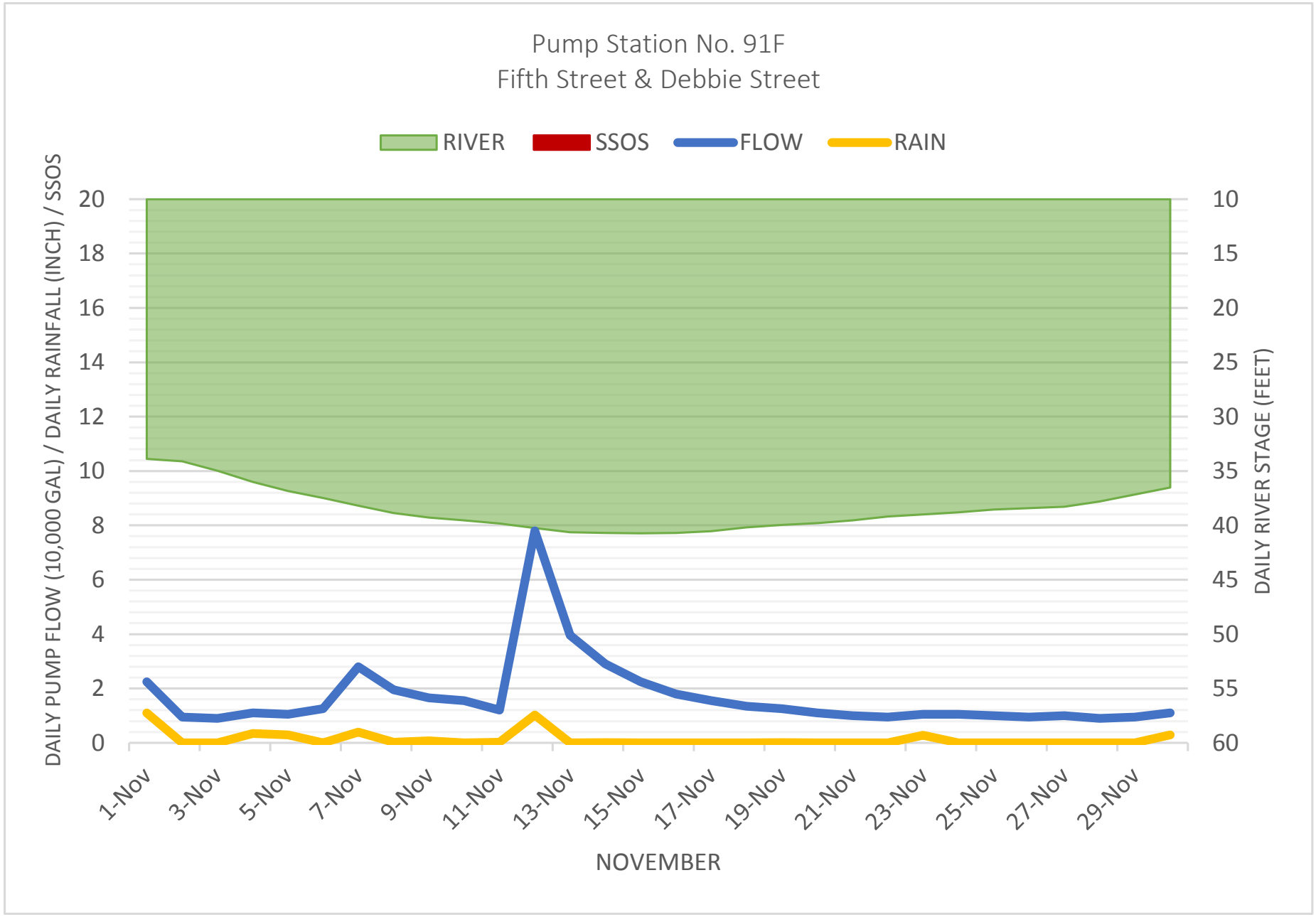
OCTOBER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RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
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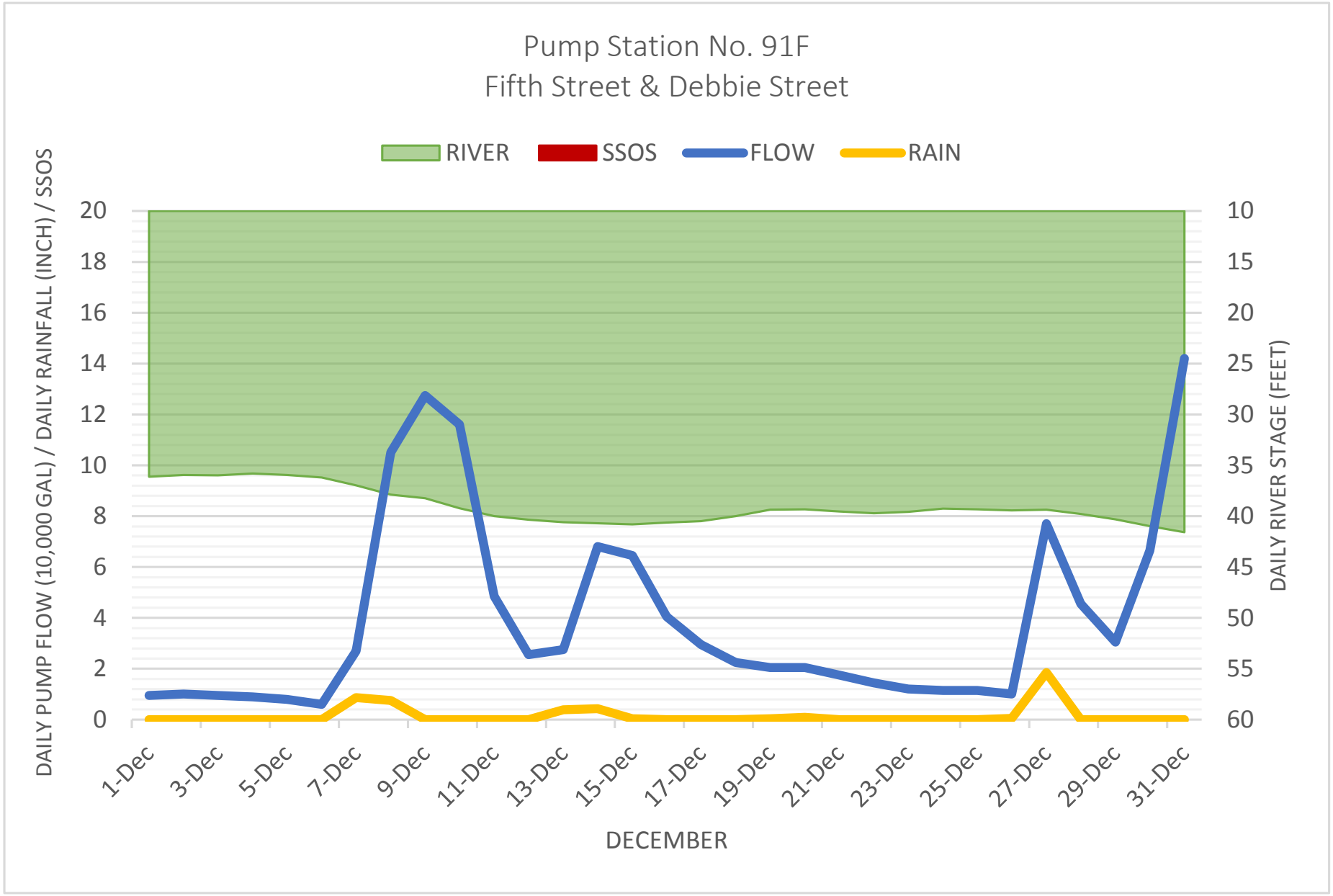
NOVEMBER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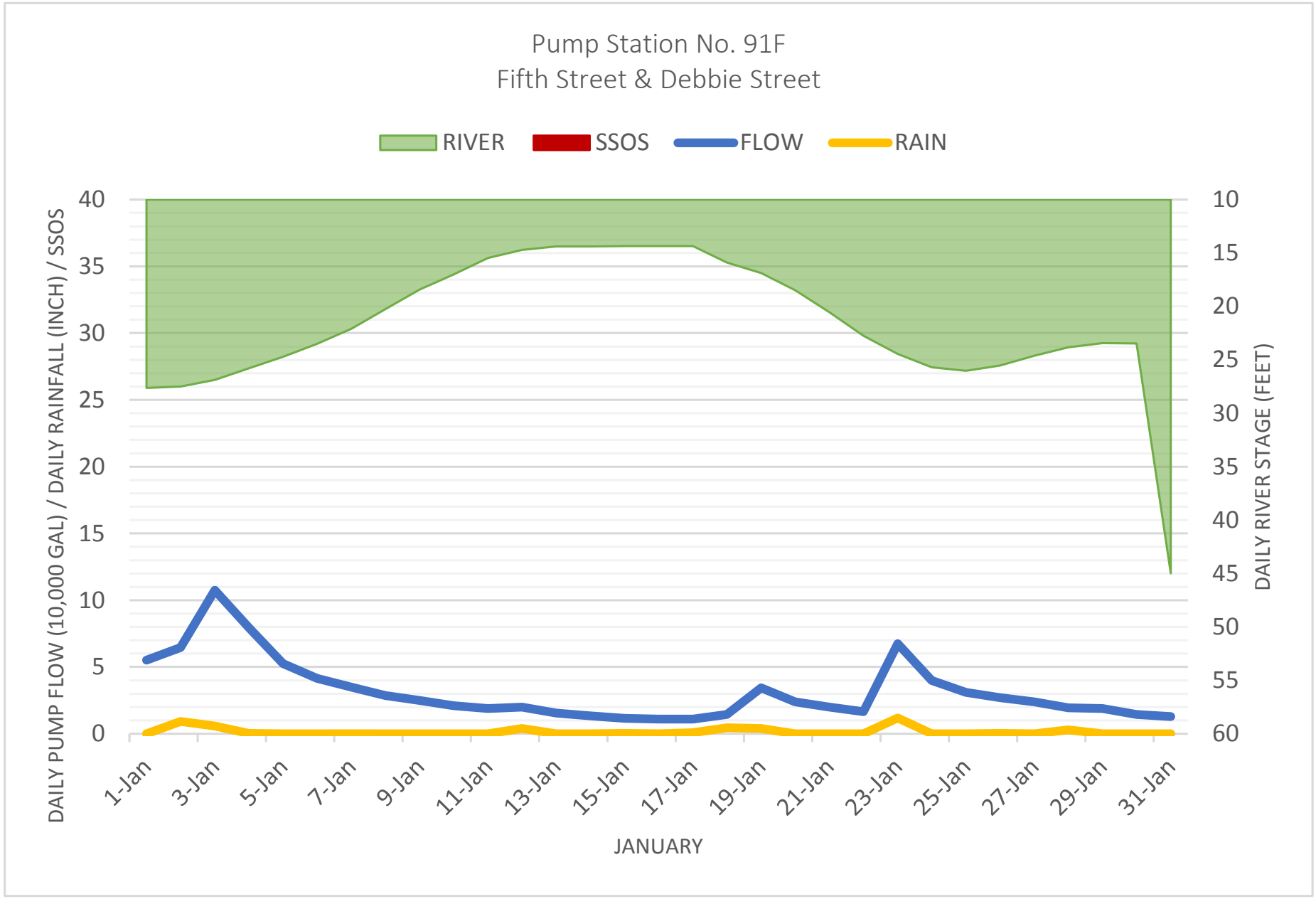
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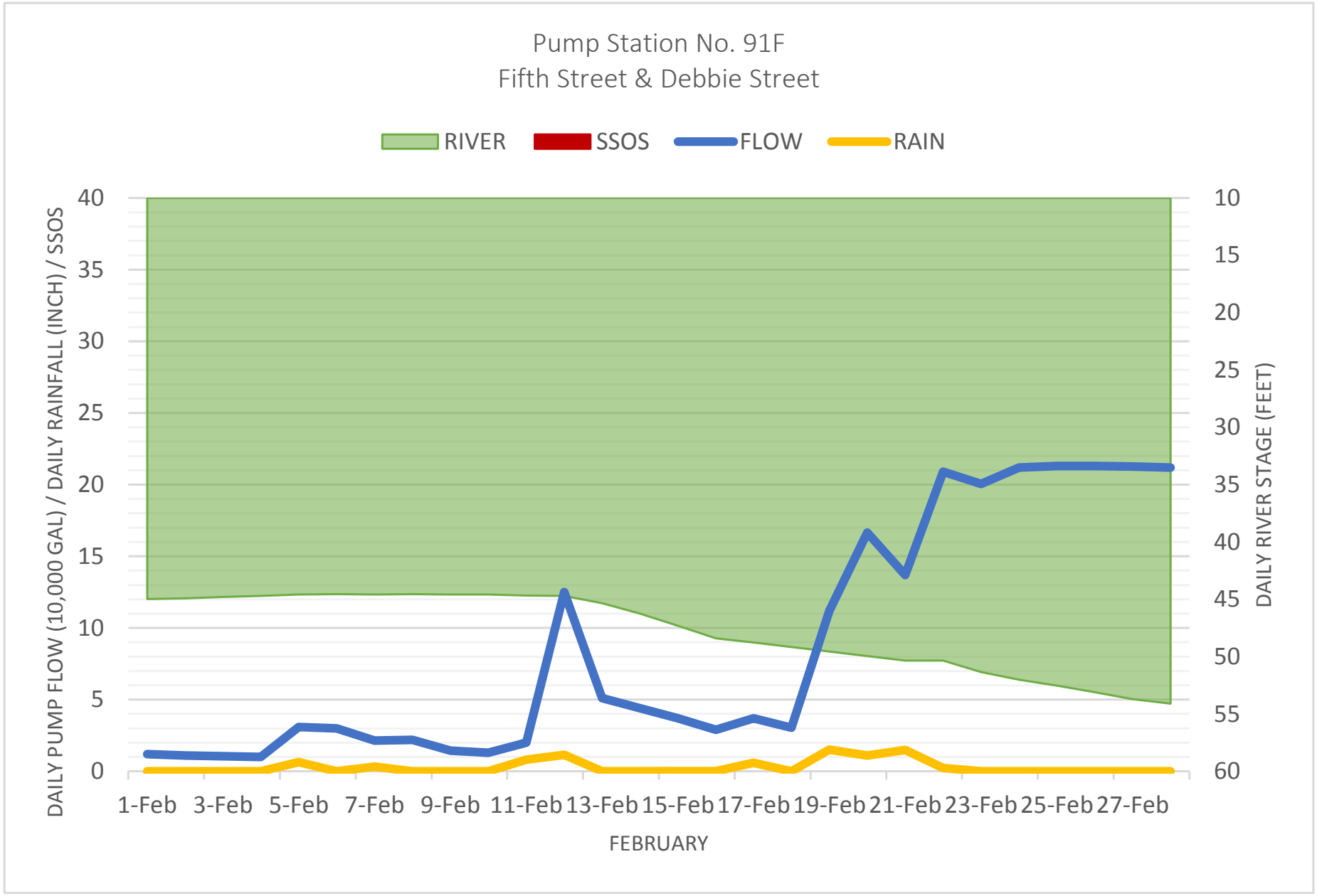
JANUARY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RAIN
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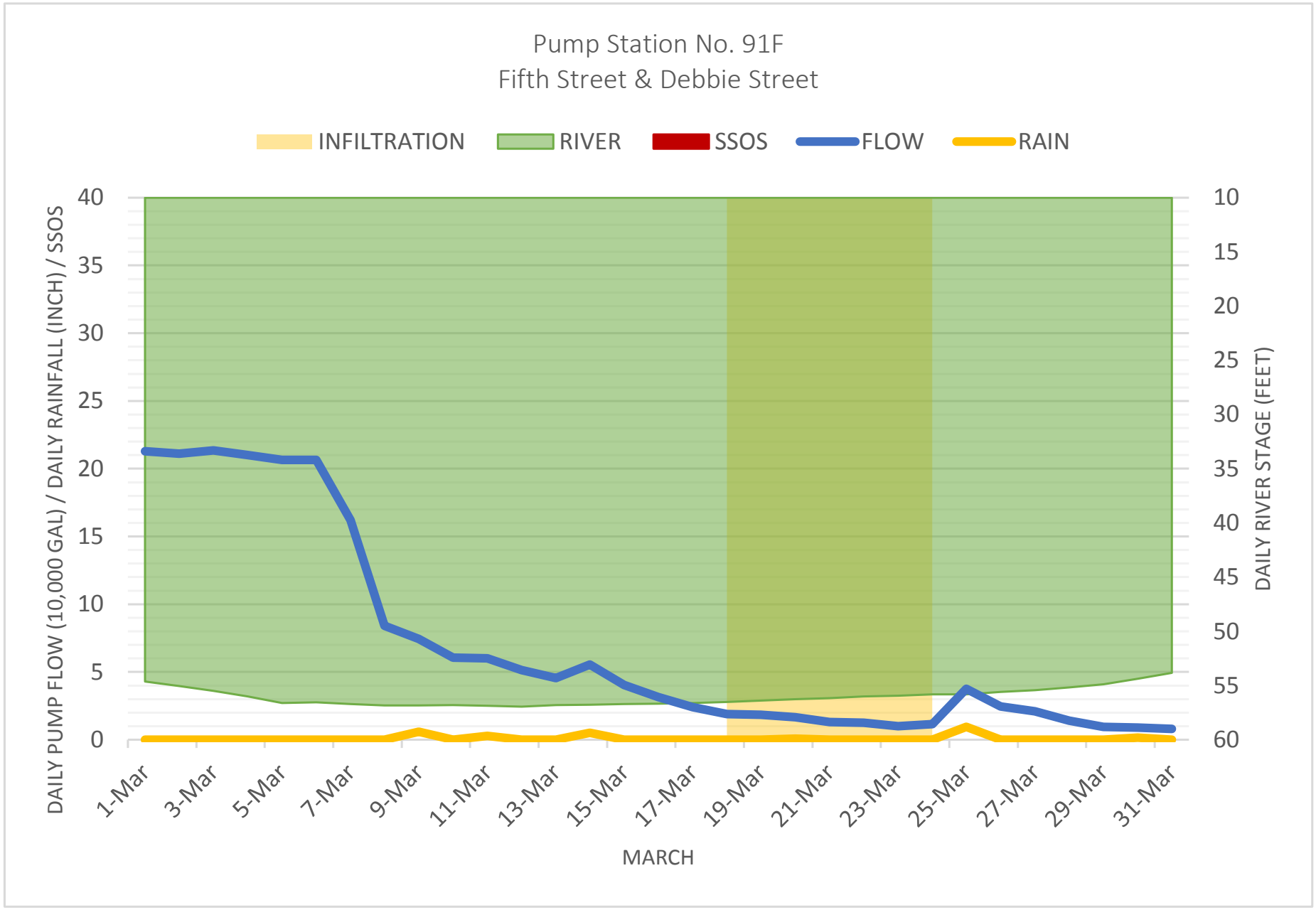
FEBRUARY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3-Mar
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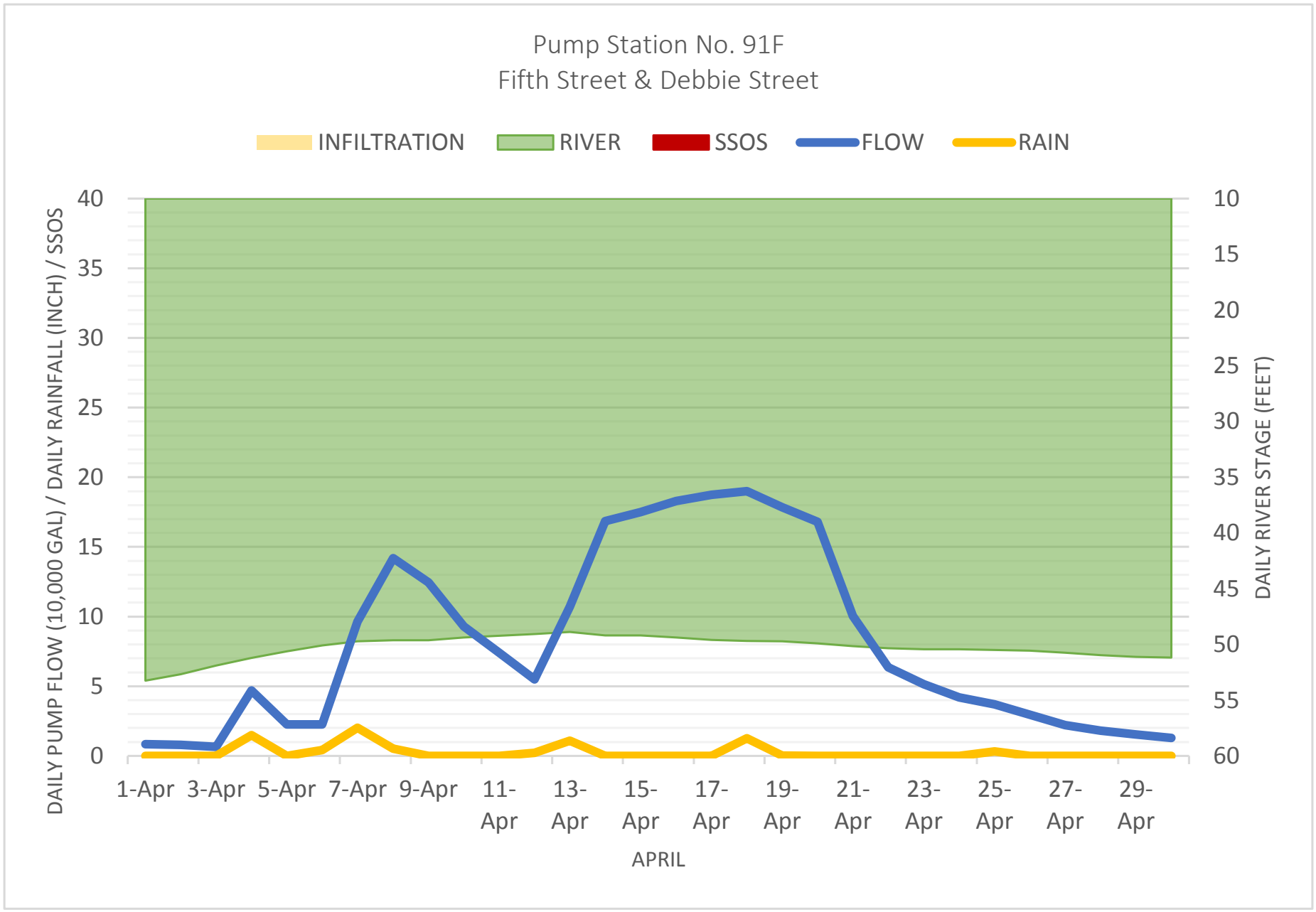
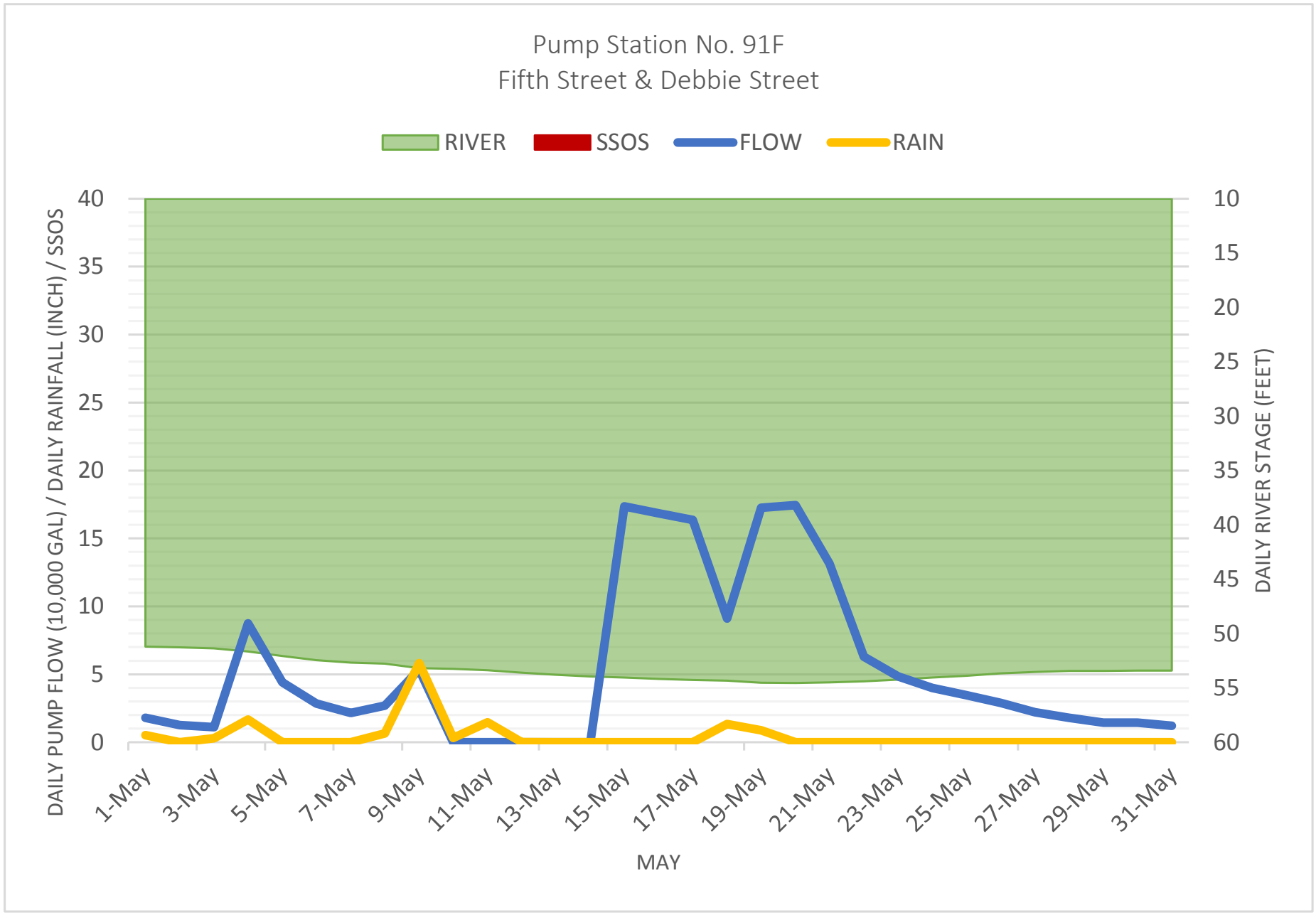
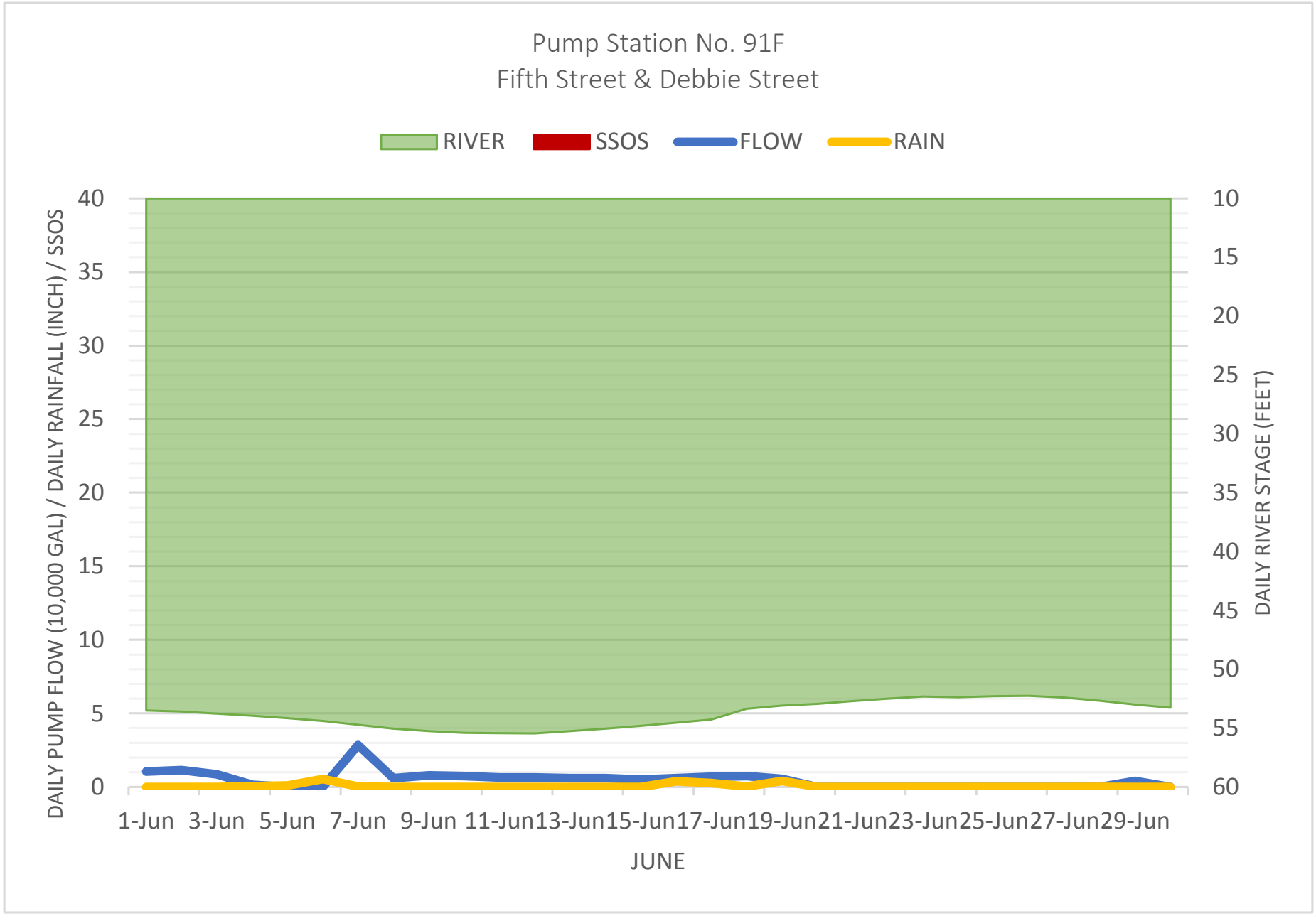
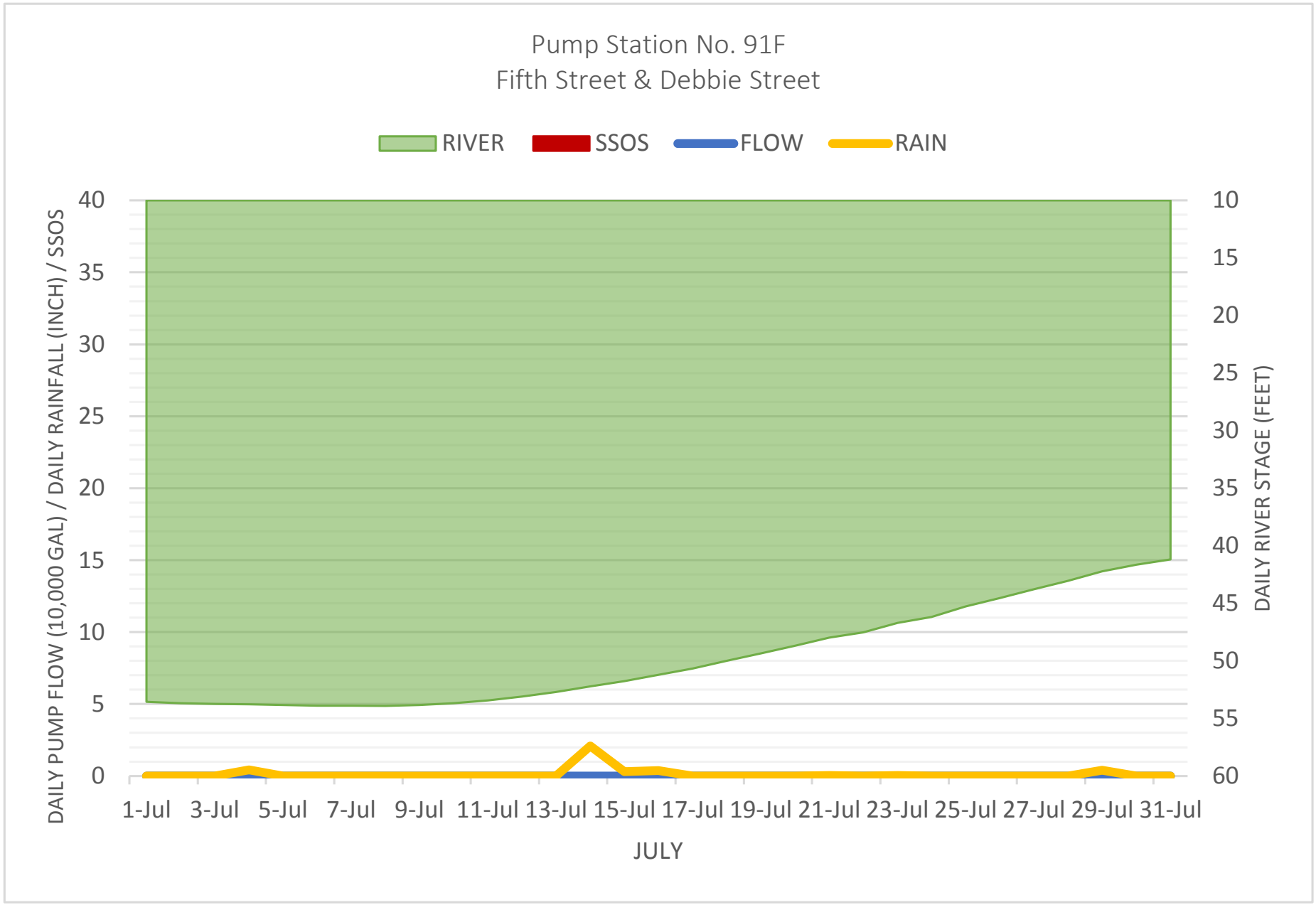
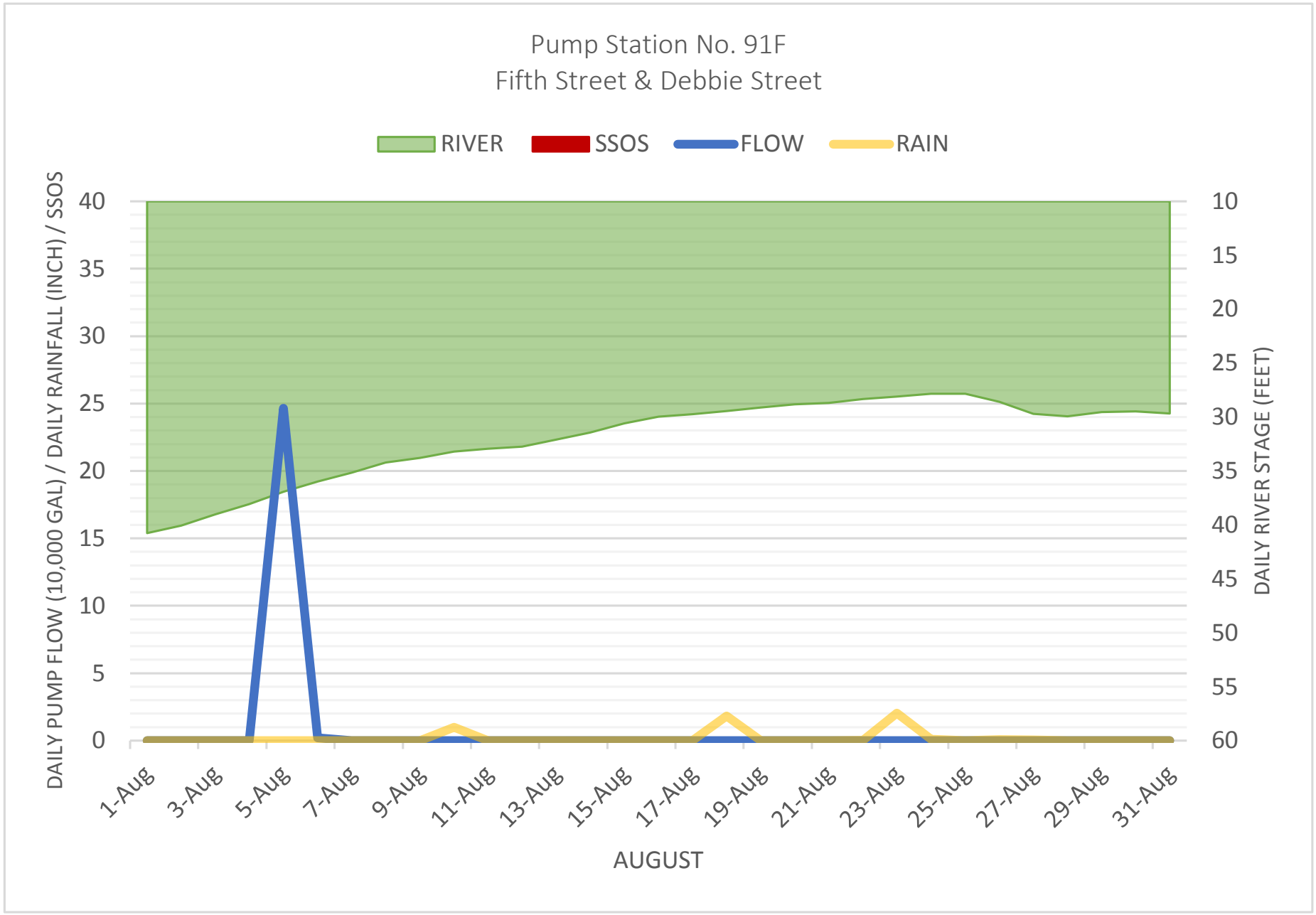
7-Mar
9-Mar
11-Mar
13-Mar
15-Mar
17-Mar
19-Mar
21-Mar
23-Mar
25-Mar
27-Mar
29-Mar
31-Mar
MARCH


Pump Station No. 91F
Fifth Street & Debbie Street
INFILTRATION
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Apr
3-Apr
5-Apr
7-Apr
9-Apr
11-Apr
13-Apr
15-Apr
17-Apr
19-Apr
21-Apr
23-Apr
25-Apr
27-Apr
29-Apr
APRIL


Pump Station No. 91F
Fifth Street & Debbie Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-May
3-May
5-May
7-May
9-May
11-May
13-May
15-May
17-May
19-May
21-May
23-May
25-May
27-May
29-May
31-May
MAY


Pump Station No. 91F
Fifth Street & Debbie Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Jun
3-Jun
5-Jun
7-Jun
9-Jun
11-Jun
13-Jun
15-Jun
17-Jun
19-Jun
21-Jun
23-Jun
25-Jun
27-Jun
29-Jun
JUNE


Pump Station No. 91F
Fifth Street & Debbie Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Jul
3-Jul
5-Jul
7-Jul
9-Jul
11-Jul
13-Jul
15-Jul
17-Jul
19-Jul
21-Jul
23-Jul
25-Jul
27-Jul
29-Jul
31-Jul
JULY


Pump Station No. 91F
Fifth Street & Debbie Street
RIVER
SSOS
FLOW
RAIN
DAILY PUMP FLOW (10,000 GAL) / DAILY RAINFALL (INCH) / SSOS
DAILY RIVER STAGE (FEET)
40
35
30
25
20
15
10
5
0
10
15
20
25
30
35
40
45
50
55
60
1-Aug
3-Aug
5-Aug
7-Aug
9-Aug
11-Aug
13-Aug
15-Aug
17-Aug
19-Aug
21-Aug
23-Aug
25-Aug
27-Aug
29-Aug
31-Aug
AUGUST